

Scientific Programme

Monday, 17 June 2019

08:30 - 09:00

Other session, San Francisco

Official Opening

08:30 - 08:33

Welcome words of the President of the Special Interest Group on Pain in Childhood

Dr. A. Fernandes (PT)

08:33 - 08:36

Welcome words of the Chair of the Scientific Program Committee

Prof. Dr. G.A. Walco (US)

08:36 - 08:39

Welcome words of the Chair of the Local Organization Committee

Prof. Dr. E. Cignacco Müller (CH)

08:39 - 08:49

Welcome words of the Health Minister of Basel city

Dr. L. Engelberger (CH)

08:49 - 08:59

Welcome words of the Director of Department of Health Professions, Bern University of Applied Sciences

Prof. Dr. U. Brügger (CH)

09:00 - 09:15

Other session, San Francisco

Art and Pain

09:00 - 09:15

Dolography - the visual communication tool for pain therapy

S. Affolter (CH)

09:15 - 10:00

Plenary session, San Francisco

Plenary I

09:15 - 10:00

Opioids - a balance between pain treatment and misuse and diversion

Prof. Dr. E.J. Krane (US)

10:30 - 11:15

Plenary session, San Francisco

Plenary II

10:30 - 11:15

Placebo and nocebo in infants and children

Prof. Dr. L. Vase Toft (DK)

Scientific Programme

11:15 - 12:00

Plenary session, San Francisco

Plenary III

11:15 - 12:00

Trauma, vulnerability and pain

Dr. M. Ranger (CA)

12:30 - 13:30

Poster session, Poster exhibition

Author Attended Poster Session 1

13:30 - 14:00

Plenary session, San Francisco

Plenary IV

13:30 - 14:00

Electronic persistent pain outcomes collaboration (EPPOC)

Dr. H. Tardif (AU)

Scientific Programme

14:05 - 15:35

Parallel workshop, Sydney

Regular Workshop Session I - Workshop 1: Understanding non-acute pain in neonates and infants - Where are we at?

Summary of presentation: Hospitalised neonates and infants are exposed to multiple painful procedures every day. Being non-verbal, this group is particularly vulnerable to ongoing and unrelieved pain. Repetitive exposures to painful, skin-breaking procedures may have short and long-term effects on the developing infant brain and nervous systems. The impact of non-acute pain (e.g. repetitive-episodic, prolonged, persistent, chronic pain) in young infants is largely unknown, and may be at least as significant as its impact on older children and adults. It is believed that these effects include prolonged hospitalisation, impaired growth trajectories, altered pain perception, and impaired neurodevelopment. The lack of a clinically useful framework for non-acute pain in infants and neonates is an obvious barrier to its study. If non-acute pain is not defined, researchers are unable to study its epidemiology, clinical implications, long-term outcomes, or management. More importantly, bedside clinicians are unable to identify when the hospitalised infant transitions from acute painful episodes to sustained non-acute pain states. Previous attempts to define chronic pain in this group were only partially successful; concerted additional efforts are needed to drive progress in this area. Before collecting any data, conceptual frameworks are necessary to frame non-acute pain in infants. The important contributions of parental factors and caregiving practices must be included to understand infants' behavioural and physiological responses. The role of factors outside the infant's immediate pain experiences in directing their transition from acute pain to non-acute pain must also be incorporated. This workshop brings together four disciplines to highlight recent efforts and stimulate novel ideas driving research in the area of non-acute pain in neonates and infants.

References:

1. van Ganzewinkel, C.-J., Anand, K.J.S., Kramer, B.W., & Andriessen, P. (2014). Chronic pain in the newborn: toward a definition. *Clinical Journal of Pain*, 30, 970 - 977.
2. DiLorenzo, M., Pillai Riddell, R., Holstii, L. (2016). Beyond acute pain: understanding pain that persists in infancy. *Children*, 3, 26. doi:10.3390/children3040026.
3. Anand, K.J.S. (2017). Defining pain in newborns: need for a uniform taxonomy? *Acta Paediatrica*, 106, 1438-44.

Moderator: Prof. K.J.S. Anand (Stanford University School of Medicine, Stanford, US)

14:05 - 14:25

All pain is not the same! Proposed frameworks for thinking about non-acute newborn pain

Prof. K.J.S. Anand (Stanford University School of Medicine, Stanford, US)

14:25 - 14:45

Defining Chronic Pain in Neonates, a Delphi Survey

Dr. C.-J. van Ganzewinkel (Máxima Medical Center, Veldhoven, NL)

14:45 - 15:05

Understanding the Acute Pain Responding For Infants who are Chronically Pained: Contextual Factors

Dr. R.R. Pillai Riddell (York University, Toronto, CA)

15:05 - 15:25

Definitions and prevalence of non-acute pain in hospitalised infants: A systematic review and meta-analysis

E. Ilhan (Macquarie University, Sydney, AU)

Scientific Programme

14:05 - 15:35

Parallel workshop, Singapore

Regular Workshop Session I - Workshop 2: The Perils are Plentiful, but the Prizes are Palpable: Dissemination and Implementation of Evidence for Improved Acute Pediatric Pain Treatment Across International Settings

Summary of presentation: Acute procedural pain is common, under-recognized and under-treated in children across varied international healthcare settings. This situation is in stark contrast with major enhancements in the quantity and quality of evidence that has been generated to support improvements in acute procedural pain assessment and treatment. Evidence has been systematically evaluated, summarized, and synthesized in policies and procedures, as well as clinical practice guidelines locally, nationally and internationally. However, the treatment and prevention of painful procedures in infants and children has not decreased substantially over time (e.g. painful procedures in hospitalized infants range between 7-17/day [Cruz 2016]; nor has the proportion of children who experience unrelieved severe pain from these procedures (Carbajal 2017).

Integrating new research evidence on the prevention and treatment of pediatric acute pain was originally thought to be intuitive and the responsibility of the individual healthcare provider (HCP). Although HCPs are key players in mobilizing new knowledge, sustainable change involves organizational or system support. Translating knowledge into institutional and community practice is a science in and of itself, and involves effectively implementing and disseminating knowledge to enhance child health outcomes.

In this workshop, we will (a) review the basis of implementation science; (b) examine recent successful exemplars of implementing pediatric procedural pain strategies across institutions and practice settings, (c) evaluate common pitfalls and obstacles in improving pain prevention, and (d) discuss the clinical impact on implementation and dissemination strategies for children experiencing pain.

At the conclusion of the workshop, participants will have an enhanced understanding of how to effectively implement organizational and system knowledge translation strategies taking individual and organizational context into consideration.

References: Carbajal R. (2017). Nonpharmacological treatment of neonatal pain. *Neonatal Pain*, 10.1007/978-3-319-53232-5_12 (125-140).

Cruz MD, Fernandes AM, Oliveira CR. (2016). Epidemiology of painful procedures performed in neonates : A systematic review of observational studies. *Euro J of Pain*, 20(4), 489-498.2016

Friedrichsdorf SJ, Eull D, Weidner C, Postier AC: A Hospital-wide Initiative to Eliminate or Reduce Needle Pain in Children Using Lean Methodology. *Pain Reports* Sept 12, 2018 (in Print)

WHO position statement on reducing pain at the time of vaccination. Available at: <http://www.who.int/wer/2015/wer9039.pdf?ua=1>

Moderator: Dr. B. Stevens (The Hospital for Sick Children, Toronto, CA)

14:05 - 14:25

Implementation of the Implementation of Infant Pain Practice Change (ImPaC) Resource in NICUs

Dr. B. Stevens (The Hospital for Sick Children, Toronto, CA)

Scientific Programme

14:25 - 14:45

Implementation of a Children's Comfort Promise in six North-American children's hospitals

Prof. Dr. S. Friedrichsdorf (US)

14:45 - 15:05

Implementation of a novel KT System for Mass Vaccination of Children

Dr. A. Taddio (University of Toronto, Toronto, CA)

14:05 - 15:35

Parallel workshop, Rio

Regular Workshop Session I - Workshop 3: The neurobiology of developing pain pathways

Summary of presentation: This workshop will provide the venue for presentation of cutting edge research by basic scientists involved in ongoing investigations of the neurobiology of developing pain pathways. It will highlight the innovative work of three experts in the pain field who study diverse yet complementary areas of pediatric pain and how these data can be translated to improve understanding of clinical problems. The symposium covers areas of interest to both basic scientists and clinicians as it will discuss the processes that underlie the development of pain in children and the long-term consequences of early life injury. The session will also relate to themes specifically identified by the scientific program committee including multidisciplinary basic science and translational pain research.

The cellular, molecular and physiological mechanisms of pediatric pain and are not well understood. This workshop will review the current gaps in our understanding of pediatric pain and the means by which we can use basic science data to address these gaps. This session will therefore take an in depth look at the developing peripheral and central pathways driving pain in neonates and how alterations to these systems during early life can drastically affect adult nociceptive responses. In addition, this workshop will help the attending professionals maintain an up to date understanding of innovative advances in the pediatric pain field in addition to obtaining novel information about how research findings may translate into better clinical outcomes or original therapies for pain in children.

References: Liu X, Green KJ, Ford ZK, Queme LF, Lu P, Ross JL, Lee FB, Shank AT, Hudgins RC and Jankowski MP. 2017. Growth hormone regulates the sensitization of developing peripheral nociceptors during cutaneous inflammation. *Pain*. 158: 333-346.

Koch SC, Acton D, Goulding M. 2018 Spinal Circuits for Touch, Pain, and Itch. *Annu Rev Physiol*. 80: 189-217.

Moriarty O, Harrington L, Beggs S, Walker SM. 2018. Opioid analgesia and the somatosensory memory of neonatal surgical injury in the adult rat. *Br J Anaesth*. 121: 314-324.

Moderator: Dr. M. Jankowski (Cincinnati Children's Hospital Medical Center, Cincinnati, US)

14:05 - 14:25

Peripheral Mechanisms of Pediatric Pain

Dr. M. Jankowski (Cincinnati Children's Hospital Medical Center, Cincinnati, US)

Scientific Programme

14:25 - 14:45

Genetic dissection of spinal circuits involved in somatosensation

Dr. S. Koch (University College London, London, UK)

14:45 - 15:05

The somatosensory memory of neonatal injury

Dr. S. Walker (University College London, London, UK)

Scientific Programme

14:05 - 15:35

Parallel workshop, Osaka

Regular Workshop Session I - Workshop 4: Applying a transdiagnostic lens to childhood chronic pain: Examining shared mechanisms between pediatric pain and mental health disorders.

Summary of presentation: Over the last few decades, research has increasingly demonstrated that many distinct psychological disorders share core underlying vulnerabilities. This has stimulated a paradigm shift from disorder-specific research to a transdiagnostic approach. This transdiagnostic lens is now being applied to the study and treatment of pediatric chronic pain. Indeed, there is increasing evidence of co-occurrence between chronic pain and internalizing disorders such as anxiety and depression in youth, with emerging data that cognitive-affective processes are shared factors underlying these disorders. This workshop will present emerging transdiagnostic theory in pediatric chronic pain, as well as new empirical data. First, Dr. Jastrowski will provide insight into how broad deficits in executive functioning—including working memory, cognitive flexibility, and sustained attention—are associated with chronic pain. Further, she will discuss how executive functioning impacts functional disability across a variety of critical domains (i.e., emotional, social, and academic). Next, Dr. Heathcote will present a novel framework linking adolescent internalizing disorders with pediatric chronic pain through biases in cognition and threat-safety discrimination. This model argues that cognitive biases act as proximal mechanisms that mediate distal risks, such as genetics and temperament, on symptomatology. She will then present the first data examining threat-safety discrimination biases in adolescents with chronic pain, including brain imaging, psychophysiological, and self-report data. Last, Dr. Kashikar-Zuck will present longitudinal data on developmental trajectories of pain and mood symptoms from childhood to adulthood, including how these trajectories predict functioning over time. Drawing from a shared vulnerability model, the link between cognitive biases, internalizing symptoms (fear, anxiety, depression) and functional disability will be discussed. Speakers will also facilitate a lively discussion of current controversies and future directions for mechanistic understanding, as well as allow sufficient time for questions.

References: Lau, J. Y., Heathcote, L. C., Beale, S., Gray, S., Jacobs, K., Wilkinson, N., & Crombez, G. (2018). Cognitive biases in children and adolescents with chronic pain: A review of findings and a call for developmental research. *The Journal of Pain*, 19(6), 589-598. <https://www.ncbi.nlm.nih.gov/pubmed/29374535>

Kashikar-Zuck S, Cunningham NR, Sil S, Bromberg M, Lynch-Jordan AM, Strotman D, Peugh J, Noll J, Ting TV, Powers SW, Lovell D, Arnold LM (2014). Long-term outcomes of adolescents with juvenile-onset fibromyalgia in early adulthood. *Pediatrics*. 133;e592-600. PMID: PMC3934334

Miró, E., Lupiáñez, J., Hita, E., Martínez, M. P., Sánchez, A. I., & Buela-Casal, G. (2011). Attentional deficits in fibromyalgia and its relationships with pain emotional distress and sleep dysfunction complaints. *Psychology and Health*, 26(6), 765-780. doi:10.1080/08870446.2010.493611

Moderator: Dr. K. Jastrowski Mano (University of Cincinnati, Cincinnati, US)

14:05 - 14:25

Executive Functioning in Pediatric Chronic Pain

Dr. K. Jastrowski Mano (University of Cincinnati, Cincinnati, US)

14:25 - 14:45

Information-Processing Biases in Pediatric Chronic Pain

Dr. L. Heathcote (Stanford University School of Medicine, California, US)

Scientific Programme

14:45 - 15:05

Mood symptoms in adolescence predict functional impairment in adulthood: Results from a longitudinal study of juvenile fibromyalgia

Dr. S. Kashikar-Zuck (Cincinnati Children's Hospital Medical Center (CCHMC), Cincinnati, US)

Parallel workshop, Samarkand

14:05 - 15:35

Regular Workshop Session IV - Workshop 19: Home alone - pediatric pain assessment and management at home

Summary of presentation: Pain is a common symptom children with complex medical conditions experience. Much of this pain is experienced at home and parents are expected to rely on their own knowledge and skills to manage this symptom, with little direction from healthcare providers. In order to best assist parents of children who are expected to experience pain in the home setting, we must first assess their knowledge as well as their misconceptions regarding pain expression in children, the necessity and safety of using analgesia at home, as recommended, and awareness of non-pharmacological methods that can be utilized to alleviate the child's pain and suffering. Once we identify these needs, the healthcare provider must educate the parents, and examine the intervention's efficacy.

While health conditions children experience may differ greatly, the parents remain the same. Our talk will present some of our research, where we found that parents had very similar needs even though their children had different pain provoking conditions. Although we found some cultural related differences in cancer pain studies conducted in Israel on Hebrew and Arabic speaking parents, we also found that parents possessed similar barriers (lack of knowledge and misconceptions of pain) and pain practices. These results were similar to the barriers and practices reported by Israeli, Hebrew speaking parents of children and young adults with cerebral palsy (CP). Unfortunately, the practice commonalities were mainly related to parents' ability to identify pain expressions in their children experiencing pain, yet they provided them with little to no analgesia, mainly due to barriers and lack of direction in assessing and managing pain at home, in real-time. Lastly, our presentation will focus on a study examining the utility of a web-based intervention that monitors symptoms and assists in managing pain children and their parents are faced with at home.

References: Fortier, M. A., Wahi, A., Bruce, C., Maurer, E. L., & Stevenson, R. (2014). Pain management at home in children with cancer: A daily diary study. *Pediatric blood & cancer*, 61(6), 1029-1033.

Rony, R. Y. Z., Fortier, M. A., Chorney, J. M., Perret, D., & Kain, Z. N. (2010). Parental Postoperative Pain Management: Attitudes, Assessment, and Management. *Pediatrics*, 125(6), e1372-e1378.

Moderator: Dr. (.Y. Zisk Rony (Hadassah - Hebrew University, Jerusalem, IL)

14:05 - 14:25

Parental Pain Knowledge and Practices at Home for Children and Young Adults with Cerebral Palsy (CP)

Dr. (.Y. Zisk Rony (Hadassah - Hebrew University, Jerusalem, IL)

14:25 - 14:45

Cultural Differences and Similarities of Parents Treating Child Cancer Pain at Home

N. Shoshani (Hadassah - Hebrew University, Jerusalem, IL)

Scientific Programme

14:45 - 15:05

Pain Buddy

Dr. M.A. Fortier (University of California-Irvine, Orange, US)

16:00 - 17:30

Parallel workshop, Sydney

Regular Workshop Session II - Workshop 6: What can imaging brain activity tell us about pain and its consequences in infants and children?

Summary of presentation: The nervous system in infants and children is developing and plastic, which presents a challenge when attempting to manage and treat pain. Over the past few decades, human neuroimaging has become an established method for assessing central nervous system correlates of pain. Techniques, such as electroencephalography (EEG), near-infrared spectroscopy (NIRS) and magnetic resonance imaging (MRI), have been optimised for use in infants and children, providing an opportunity to investigate mechanisms underlying the development of pain perception, and to understand how early life experiences can modulate infant and childhood pain. A mechanistic understanding of the neural processes underlying pain perception in early life will help us make progress in the management of childhood pain.

In this Workshop, we will discuss (i) the measurement of noxious-evoked brain activity in infants, and its use in trials of analgesics and in investigations of non-pharmacological comfort techniques; (ii) the long-term consequences of early life pain; (iii) the emergence of consciousness and its relation to pain; and (iv) the maturational changes in structural and functional brain activity underlying early pain perception. Understanding the development of sensory and nociceptive activity in early life is valuable to researchers, practitioners and parents involved in understanding, measuring and treating childhood pain. We endeavor to provide an overview of the most recent advances from paediatric neuroimaging.

References: Hartley and Moultrie et al., (2018) Procedural Pain in Premature Infants (Poppi): A stopped blinded randomised placebo-controlled trial investigating the analgesic efficacy and safety of morphine, Lancet (in press).

Guo et al., (2018) Quantitative assessment of white matter injury in preterm neonates: Association with outcomes. Neurology.

Grunau RE, Ranger M, Lagercrantz H. Pain and consciousness in infants. In Pain and the conscious brain. Eds. Garcia-Larrea L, Jackson PJ. P. 155-165. Walters Kluwer 2016.

Moderator: Prof. R. Slater (University of Oxford, Oxford, UK)

16:00 - 16:20

Brain imaging provides an objective tool for measuring pain-related brain activity in infants

Prof. R. Slater (University of Oxford, Oxford, UK)

16:20 - 16:40

MRI reveals long-term consequences of pain in early life

Prof. Dr. R. Grunau (CA)

16:40 - 17:00

Understanding pain and consciousness in neonates

Prof. H. Lagercrantz (Karolinska Institutet, Stockholm, SE)

Scientific Programme

17:00 - 17:20

MRI reveals structural and functional connectivity shaping early pain perception

Dr. F. Moultrie (University of Oxford, Oxford, UK)

Parallel workshop, Singapore

16:00 - 17:30

Regular Workshop Session II - Workshop 7: Paying attention to distraction: A critical consideration of distraction mechanisms and effectiveness in acute and chronic pain contexts.

Summary of presentation: Distraction is a currently widely recommended pain management technique to reduce child pain and distress across a variety of situations. Despite an apparent abundance of evidence supporting the effectiveness of distraction, systematic reviews highlight numerous limitations with the extant literature (e.g. poor conceptualization of distraction). Consequently, the exact underlying mechanisms and the critical components of distraction techniques remain unclear. Furthermore, a close look suggests distraction for pain may not be beneficial or adaptive for all children under all circumstances. A leading cognitive theory of distraction is based on the brain's limited attentional capacity, hence shifting attention to a distractor means that a child will have less perceptual capacity to process and attend to pain. Following this reasoning, a distractor involving active engagement should work better compared to more passive distractors. However, research results on different types of distraction are inconclusive and individual differences on distraction effectiveness are common (e.g. distraction seem less effective for children catastrophizing about pain). Furthermore, evaluations of the effectiveness of distraction predominantly focus on acute pain experiences, limiting our understanding of distraction mechanisms and efficacy for chronic pain. This symposium will critically reflect on the current evidence for distraction across acute and chronic pain experiences. First, the symposium will focus on acute pain, which includes an overview of a newly published systematic review and randomised control trial in the context of needle procedures, exploring what this recent evidence reveals about the distraction mechanisms and issues with extant literature. Following the acute pain focus, we will present data on the use of distraction coping strategies, by both children and parents, across various chronic pain populations. To stimulate discussion, the symposium will end by presenting a contrasting approach to pediatric chronic pain treatment, i.e. ACT, and how neuropsychiatric factors may predict outcome in this type of treatment.

References: Birnie, K.A., Noel, M., Chambers, C.T., Uman, L., & Parker, J.A. (in press). Psychological interventions for needle-related pain and distress in children and adolescents. *The Cochrane Database of Systematic Reviews*.

Newell A, Keane J, McGuire B, Heary C, McDarby V, Dudley B, Moran J, Francis K & Caes L (2018) Interactive versus Passive Distraction and Parent Psychoeducation as pain management techniques during paediatric venepuncture – A Randomized Controlled Trial. *Clinical Journal of Pain.*; doi: <https://doi.org/10.1097/AJP.0000000000000628>

Pielech M, Vowles KE, Wicksell R. Acceptance and Commitment Therapy for Pediatric Chronic Pain: Theory and Application. *Children* 2017, 4, 10; doi:10.3390/children4020010. <http://www.mdpi.com/2227-9067/4/2/10>

Moderator: Dr. L. Caes (University of Stirling, Stirling, UK)

Scientific Programme

- 16:00 - 16:20** **Comparing active versus passive distraction, with or without parental psycho-education, as a pain management technique during venepunctures.**
Dr. L. Caes (University of Stirling, Stirling, UK)
- 16:20 - 16:40** **Distraction as a coping strategy in chronic pain**
Dr. M. McMurtry (University of Guelph, Guelph, CA)
- 16:40 - 17:00** **Distraction or acceptance? The utility of ACT and the role of neuropsychiatric factors in predicting outcome**
Dr. R. Wicksell (Karolinska University Hospital, Stockholm, SE)
- 17:00 - 17:20** **Using review evidence to identify knowledge gaps and advance the science of distraction**
Dr. K. Birnie (University of Toronto, Toronto, CA)

Scientific Programme

16:00 - 17:30

Parallel workshop, Rio

Regular Workshop Session II - Workshop 8: Acknowledging the “elephant in the room”: Uncertainty in the context of pediatric pain.

Summary of presentation: Pain is an unpleasant and unwanted experience in acute and chronic contexts. Whilst typically undesirable, for many youth, the experience of pain is often understandable, adaptive, and expected. For example, pain may be associated with post-surgical healing, serve as a signal to avoid further danger, or be an expected consequence associated with various long-term conditions (e.g. arthritis). Yet, for many youth, the cause of the pain is unclear and is experienced in the absence of obvious pathology or physical threat. Beyond the experience of pain itself, these youth experience additional challenges associated with uncertainty surrounding the cause and meaning of their pain, such as anxiety and distress. This symposium seeks to explore and understand the experience of pain and uncertainty across a variety of pediatric pain settings (e.g. chronic pain, cancer) and from a range of perspectives (e.g. youth, parents, clinicians), to build a more comprehensive understanding of how uncertainty surrounding pain is perceived and managed.

At the end of this symposium, attendees will be able to:

- understand the nature, experience, and impact of diagnostic uncertainty in the context of chronic pain in youth, parents and clinicians.
- understand challenges experienced by clinicians in assessing and treating individuals with chronic pain in the absence of an identifiable pathological cause.
- understand the experience and impact of uncertainty around symptom perception after the experience of cancer in youth.
- understand how interventions that better explain pain to parents and youth with pain (e.g., pain neuroscience education) may serve to reduce uncertainty and improve understanding, ‘buy in’, and ultimately treatment outcomes.

References: Heathcote, L.C., & Eccleston, C. (2017). Pain and cancer survival: a cognitive-affective model of symptom appraisal and the uncertain threat of disease recurrence. *Pain*, 158, 1187-1191.

Pincus, T., Noel, M., Jordan, A. & Serbic, D. (2018). Perceived diagnostic uncertainty in pediatric chronic pain. *PAIN*, 159 (7), 1198-1201.

Robins H, Perron V, Heathcote LC, Simons LE. Pain neuroscience education: State of the art and application in pediatrics. *Children*. 2016; 3: E43. PMID: 28009822.

Moderator: Dr. A. Jordan (University of Bath, Bath, UK)

16:00 - 16:20

A clinical taboo: Clinicians’ experiences of managing diagnostic uncertainty in a paediatric clinical context.

Dr. A. Jordan (University of Bath, Bath, UK)

16:20 - 16:40

The pediatric period: Diagnostic uncertainty in youth with chronic pain and their parents

Dr. M. Noel (University of Calgary, Calgary, CA)

16:40 - 17:00

Using pain neuroscience education to enhance communication and connection between providers and patient families

Dr. L. Simons (Stanford University School of Medicine, California, US)

Scientific Programme

17:00 - 17:20

The survivorship context: Living with pain-related uncertainty after childhood cancer

Dr. L. Heathcote (Stanford University School of Medicine, California, US)

16:00 - 17:30

Parallel workshop, Osaka

Regular Workshop Session II - Workshop 9: Sources of individual variability when using objective measures of paediatric pain

Summary of presentation: In experimental pain research there is considerable and consistent intra- and inter-individual differences in pain perception and sensitivity, the development of pain pathologies, and the response to interventions ^{1,2}. In this workshop, each presenter will describe the emerging data from their labs that reveals the various sources of variability of the pain experience within the paediatric population, and the methods used to detect this variability. Data will also be presented which illustrates the existence of distinct pain profiles and response patterns, which are often ignored when averaging data across whole groups. It will be shown that these pain profiles can be discerned from healthy infants, a clinical population, and in animal models. This workshop will also include translational work, which uses an animal model of inflammatory pain in order to understand the potential mechanisms behind some of these different pain profiles. A secondary theme of this workshop, will be the application of diverse measures of pain across different developmental age groups. The variability of the pain experience can be observed in adolescents, using self-report as the standard measure for reporting pain. However, in order to measure this in a younger non-verbal population, researcher must instead focus on various objective measures, such as behaviour and neuroimaging ³. A strength of this workshop will be the presentation of different measures of the pain experience, including the cortical processing in neonates, behaviour in infants up to 1 year, and self-report in adolescents. Following this workshop, attendees will have a greater appreciation of the individual variability in the pain experience across different paediatric age groups, and a more in depth understanding of the various methods which can highlight these differences.

References:

1. Nielsen et al. (2009). J Pain.
2. Pillai-Riddell et al. (2013). Pain.
3. Jones et al. (2017). Curr Biol.

Moderator: Dr. L. Jones (University College London, London, UK)

16:00 - 16:20

Patterns of pain-related cortical responses and the effects of age and sex

Dr. L. Jones (University College London, London, UK)

16:20 - 16:40

Capturing the variability in infant pain responses using behavioural cues

M. DiLorenzo (York University, Toronto, CA)

16:40 - 17:00

Pain profiles in adolescents with juvenile idiopathic arthritis and the underlying mechanisms

Dr. A. Learoyd (University College London, London, UK)

Scientific Programme

16:00 - 17:30

Parallel workshop, Samarkand

Regular Workshop Session II - Workshop 10: Biological influences on adolescent pain: Sex, stress, and inflammation

Summary of presentation: Adolescence is a critical period of development during which there are various hormonal, immunological, neural and psychological changes that can affect the pain system. This workshop will focus on biological factors including sex and stress hormones as well as inflammatory markers, and their effect on experimental and clinical pain in adolescents. There is evidence that these factors can affect pain processing mechanisms and pain sensitivity. However, most of the current knowledge is based on animal models or human studies conducted in adult populations. For instance, there is evidence that sex hormones, including testosterone, modulate pain sensitivity and hence might be integral to explaining -at least part- of the sex differences observed in pain. Also, acute stress has been found to influence pain sensitivity in adults, an effect that has been related to cortisol reactivity. In patients with chronic pain, there is growing support for cortisol dysfunctions, which might -at least partly- affect chronic pain through its effects on learning and memory. Finally, inflammatory markers have been linked to pain sensitivity in chronic pain as well and are hypothesized to interact with psychological aspects of pain. To date, clinical and experimental studies that investigate these biological factors and their interaction with pain in this critical time window of adolescence are still scarce. Given the high incidence of chronic pain emerging in adolescence, as well as the high likelihood of pain persisting into adulthood, a better understanding of these biological processes in adolescence is important and may inform the development of early interventions or even preventive strategies to advance pediatric pain management.

References:

Melchior M, Poisbeau P, Gaumont I, Marchand S. Insights into the mechanisms and the emergence of sex-differences in pain. *Neuroscience*. 2016 Dec 3;338:63-80.

Timmers I, Hsu C, Quaedflieg CWEM, Heathcote LC, Roynaghi C, Simons LE. (submitted) Cortisol dysfunction and fear- avoidance in chronic pain: a review and theoretical integration.

Caumo W, Deitos A, Carvalho S, Leite J, Carvalho F, Dussán-Sarria JA, Lopes Tarragó Mda G, Souza A, Torres IL, Fregni F. Motor Cortex Excitability and BDNF Levels in Chronic Musculoskeletal Pain According to Structural Pathology. *Front Hum Neurosci*. 2016. 15;10:357.

Moderator: Dr. H. Nahman-Averbuch (Cincinnati Children's Hospital Medical Center, Cincinnati, US)

16:00 - 16:20

The effect of testosterone levels on pain sensitivity

Dr. H. Nahman-Averbuch (Cincinnati Children's Hospital Medical Center, Cincinnati, US)

16:20 - 16:40

The effect of stress on fear learning and extinction in youth with chronic pain

Dr. I. Timmers (Stanford University, Palo Alto, US)

16:40 - 17:00

Chronic pelvic pain in adolescents with endometriosis: The role of psychophysical and inflammatory factors in the development of central sensitization

Prof. C. Sieberg (Boston Children's Hospital and Harvard Medical School, Boston, US)



CHILDREN AND FAMILIES AS PARTNERS IN PAIN MANAGEMENT
12TH INTERNATIONAL SYMPOSIUM ON PEDIATRIC PAIN
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Scientific Programme

Scientific Programme

Tuesday, 18 June 2019

08:00 - 08:15

Other session, San Francisco

Art and Pain

08:00 - 08:15

Presentation 1

Dr. E. Reifert (CH)

08:15 - 09:00

Plenary session, San Francisco

Plenary V

08:15 - 09:00

Neonatal pain: pharmacology

Prof. Dr. J. van den Anker (University of Basel Children's Hospital, CH)

09:00 - 09:45

Plenary session, San Francisco

Plenary VI

09:00 - 09:45

Pain treatment in developing countries: Reducing the gap

Prof. Dr. F.O. Oyebola (NI)

Scientific Programme

10:15 - 11:45

Parallel workshop, Sydney

Regular Workshop Session III - Workshop 11: Trauma and Pediatric Pain: Translational Examinations of Cognitive, Behavioural, Interpersonal, and Neurobiological Mechanisms

Summary of presentation: Painful experiences (procedures, surgeries, injuries) can be traumatic for children and parents. However, emerging research is pointing to the powerful role of adverse childhood experiences (ACEs) and trauma in early life in the development of pain problems into adulthood. Nevertheless, despite decades of research on trauma and pain in the adult literature, surprisingly little research has examined the trauma-pain relationship in youth or the underlying mechanisms that drive this over time. Given recent implementation by the US government of separating parents and children at the US border, and compelling epidemiological research pointing to ACEs in the development of adult chronic pain, examination of how early life trauma gets “under the skin” to influence how children and adolescents experience acute and chronic pain has never been more timely. This symposium consists of an international panel of clinical and basic scientists examining the relationship between trauma and pain across infancy, childhood and adolescence, as well as the neurobiological, cognitive, behavioural and interpersonal mechanisms that drive this relationship over time. This symposium will inform advances in prevention and treatment of pain and trauma in these vulnerable youth.

At the end of this symposium, attendees will be able to:

- Understand key cognitive, behavioural, and neurobiological mechanisms underlying the trauma and chronic pain relationship in adolescence.
- Determine the influence of early life adversity on neurological function and immunological processes to understand the underlying mechanisms that increase risk for the development of chronic pain in an animal model.
- Understand the construct of allostatic load in the context of stress and/or trauma exposure and how this construct may relate to the maintenance of chronic pain conditions and/or associated physical and psychosocial impairment in youth.
- Recognize acute and posttraumatic stress symptoms associated with painful medical procedures in hospitalized children undergoing intensive care.

References: Holley, A.L., Wilson, A.C., Noel, M., & Palermo, T.M. (2016). Post-traumatic stress symptoms in children and adolescents with chronic pain: A topical review of the literature and a proposed framework for future research. *Eur J Pain*, 20(9), 1371-1383.

Nelson, S.M., Cunningham, N. R., and Kashikar-Zuck, S. (2016). A Conceptual Framework for Understanding the Role of Adverse Childhood Experiences in Pediatric Chronic Pain. *Clin J Pain*, 33(3), 264-270.

Gold, J. I., Kant, A. J., Kim, S. H. (2008). The impact of unintentional pediatric trauma: A review of pain, acute stress, and posttraumatic stress. *J Pediatr Nurs*, 23(2), 81-91.

Moderator: Dr. M. Noel (University of Calgary, Calgary, CA)

Scientific Programme

- 10:15 - 10:35** **Unravelling the Relationship between Adverse Childhood Experiences, Post-Traumatic Stress, and Pediatric Chronic Pain: An Integrative Examination**
Dr. M. Noel (University of Calgary, Calgary, CA)
- 10:35 - 10:55** **Epigenetic and Inflammatory Mechanisms underlying Early Life Trauma and Adolescent Pain**
Dr. R. Mychasiuk (Monash University, Melbourne, AU)
- 10:55 - 11:15** **The Relations between Acute and Posttraumatic Stress and Painful Medical Procedures in children hospitalized in the Paediatric Intensive Care Unit**
Prof. J. Gold (University of Southern California, Los Angeles, US)
- 11:15 - 11:35** **Adverse Childhood Experiences (ACEs) in Youth with Chronic Pain: Incidence and Phenomenology of Potential Underlying Mechanisms**
Dr. S. Nelson (Boston Children's Hospital, Boston, US)

Scientific Programme

10:15 - 11:45

Parallel workshop, Singapore

Regular Workshop Session III - Workshop 12: Beyond Family-Centered Care: Youth and Families as Partners in Pediatric Chronic Pain Program Planning, Evaluation, and Research

Summary of presentation: Despite the worldwide adoption of family-centered care, a philosophy that embraces partnership among clinicians, youth and parents in care decision-making, it remains a novel approach in service planning, evaluation and research, particularly in pediatric pain. An emerging body of evidence demonstrates that parent and youth engagement in health services planning leads to better outcomes, safer and higher quality of care, and cost containment. The unique value of patient and family partners in program evaluation and research is also emerging; questions are more relevant and meaningful, data more appropriate and targeted, and processes, conclusions and recommendations more valid and sensitive to patients' and families' needs and priorities. Furthermore, youth and parent engagement in program planning increases their investment in later program evaluation, and so facilitates recruitment for future research. Despite the mounting requests from research funders for evidence of genuine patient and family engagement on research teams, it remains unclear on when and how to perform engagement tasks, particularly with youth and their parents. Moreover, empirical evaluation and reflections on the experience of such partnerships is lacking. The purpose of this workshop is to showcase successful patient and family engagement in multidisciplinary pediatric chronic pain program planning and research across three countries (Canada, Australia, Ireland). Youth and parent partner reflections will be integrated throughout.

At the end of this symposium, attendees will be able to :

1. Identify useful engagement strategies for youth with pain and their parents in service planning, evaluation and research
2. Discuss the impact of data collected through patient engagement on present and future planning, evaluation and research processes
3. Deliberate benefits and challenges of patient and family engagement in pediatric pain with various stakeholders (e.g. clinicians, researchers, funders and policy-makers)
4. Design and conduct a service planning, evaluation or research project using patient and family engagement principles.

References: 1. Kepreotes, E. A. and Lord, S. M. (2017). Retrospective review of consecutive cases of paediatric complex pain in a New South Wales tertiary children's hospital. *Journal of Paediatrics & Child Health* 53(2).
<http://dx.doi:10.1111/jpc.13468>

2. Kirwan, J. R., de Wit, M., Frank, L., Haywood, K. L., Salek, S., Brace-McDonnell, S., ... & Bartlett, S. J. (2017). Emerging guidelines for patient engagement in research. *Value in Health*, 20(3), 481-486.

3. Moreau, K. A. (2017). Twelve tips for planning and conducting a participatory evaluation. *Medical teacher*, 39(4), 334-340.

Moderator: Dr. K. Birnie (University of Toronto, Toronto, CA)

10:15 - 10:35

Building sustainable and meaningful engagement of patients and families in pediatric chronic pain research and care.

Dr. K. Birnie (University of Toronto, Toronto, CA)

Scientific Programme

10:35 - 10:55

Patient and families as partners in clinical service improvement

Dr. E. Kepreotes (John Hunter Children's Hospital, HNELHD, NSW, AU)

10:55 - 11:15

How can teachers increase their understanding of issues faced by young children who live with chronic pain?

Dr. S. O'Higgins (National University of Ireland, Galway, IE)

11:15 - 11:35

Listening to youth with pain-related disability and their parents in designing and implementing an evaluation for an interdisciplinary pain treatment program

K. Hurtubise (University of Sherbrooke, Sherbrooke, CA)

Scientific Programme

10:15 - 11:45

Parallel workshop, Rio

Regular Workshop Session III - Workshop 13: "Why Me?" Individual Differences in Susceptibility to Pain in Little Rodents and Little People

Summary of presentation: Pediatric chronic pain is a significant health problem. Estimates posit that 20% to 35% of children and adolescents are affected by chronic pain worldwide, and for 5-8% of children pain is severe and disabling. Pain experienced in pediatric hospitals is common, under-recognized, and under-treated, with more than 10% of hospitalized children showing features of chronic pain. The total costs to society incurred by care for children and adolescents with moderate to severe chronic pain has been extrapolated to \$19.5 billion annually in the USA, with about 3% of pediatric chronic pain patients requiring intensive rehabilitation. Untreated chronic pain in childhood incurs a high risk for the subsequent pain and psychological disorders later in life.

However, it remains in large part enigmatic why some individuals experience pain or develop persistent pain beyond healing, and others do not. Pain and pathology are weakly correlated in both mice and in children, and experimental pain in healthy subjects varies enormously .

The three speakers will explore key aspects which support our understanding of the transition from acute to chronic pain and add to the discussion of nature versus nurture. This workshop aims to (1) review the neurobiological basis for pain vulnerability; (2) evaluate the current knowledge base regarding the influence of genetic factors, environmental risk factors, altered brain connectivity, and epigenetics on variable susceptibility to pediatric pain, as well as response to analgesics; and (3) present psychosocial, parent/child factors and psychophysical factors associated with transition from acute to chronic postsurgical pain.

The understanding of individual differences of underlying pain persistence can inform targeted approaches to promote pain recovery and reduce impact of chronic pain in childhood and beyond.

References: 1. Rabbitts, J.A., Fisher, E., Rosenbloom, B.N., Palermo, T.M. Prevalence and predictors of chronic postsurgical pain in children: A systematic review and meta-analysis. *J Pain* 18(6):605-614, 2017

2. Rosen S, Ham B, Mogil JS. Sex differences in neuroimmunity and pain. *J Neurosci Res.* 2017;95(1-2):500-508.

3. Friedrichsdorf SJ, Giordano J, Desai Dakoji K, Warmuth A, Daughtry C, Schulz CA. Chronic Pain in Children and Adolescents: Diagnosis and Treatment of Primary Pain Disorders in Head, Abdomen, Muscles and Joints. *Children (Basel).* 2016;3(4).

Moderator: Prof. J. Mogil (McGill University, Montreal, QC, CA)

10:15 - 10:35

Lots of Pain in Little People and Little Rodents? Genetic and Environmental Risk Factors.

Prof. J. Mogil (McGill University, Montreal, QC, CA)

10:35 - 10:55

Nature versus Nurture: Exploring Vulnerabilities of Children and Adolescents with Chronic Pain.

Prof. Dr. S. Friedrichsdorf (US)

10:55 - 11:15

Chronic Postsurgical Pain in Children: Resolution and Persistence.

Dr. J. Rabbitts (Seattle Children's Hospital, Seattle, WA, US)

Scientific Programme

10:15 - 11:45

Parallel workshop, Osaka

Regular Workshop Session III - Workshop 14 Bringing pediatric pain management into the 21st century: Using learning health systems to engage patients and families in individualized pain assessment and treatment

Summary of presentation: How do learning health system (LHS) registries help actively engage patients and families in treatment and research?

LHS registries allow for cross-discipline collaboration to guide research and facilitate precision healthcare in the treatment of chronic health conditions. Our symposium focuses on the development and implementation of several such registries of patient-reported health status in the field of pediatric chronic pain: Peds CHOIR-Pediatric Collaborative Health Outcomes Information Registry, Riley Hospital Pediatric Pain Registry, and WeCOPE-WEB-based Comprehensive Pain Evaluation. In the seminal 2011 report *Relieving Pain in America*, the Institute of Medicine identified the need for better pain data, calling for the development of national registries and LHS. LHS utilize technology to partner with patients and clinicians, to continuously improve the accuracy of assessment and offer support for clinical decision making. LHS registries help us answer questions such as: how can we target assessment to meet this patient's/family's goals, what strategies will engage patients and families in treatment most effectively, how can we measure treatment impact, and can we personalize care based on patient needs and values? They also foster multi-site research collaborations, imperative for advancing the knowledge in our field.

Advantages of LHSs will be highlighted including: enable large trial designs and longitudinal outcomes research; facilitate point-of-care decision making; integrate standardized measures providing validated comparative metrics across groups; offer computer adaptive testing to decrease respondent and provider burden; facilitate collaboration across providers, clinical settings, and multisite comparisons.

Symposium aims are: (1) review how LHS can inform precision medicine, actively engage patient/family in treatment, enhance clinical intervention and research in pediatric pain conditions, (2) outline steps in developing local and national LHS, and (3) present case illustrations to showcase the uses of LHS registries and provide guidance on leveraging LHS for optimal, individualized pain management.

References: Bhandari, R. P., Feinstein, A. B., Huestis, S. E., Krane, E. J., Dunn, A. L., Cohen, L. L., ... Mackey, S. C. (2016). Pediatric-Collaborative Health Outcomes Information Registry (Peds-CHOIR): A Learning Health System to Guide Pediatric Pain Research and Treatment. *Pain*, 157(9), 2033-2044.

Miller, M.M., Wuest, D., Williams, A.E., Scott, E.L, Trost, Z.,Hirsh, A.T. (2016) Injustice perceptions about pain: parent-child discordance is associated with worse functional outcomes. *Pain*, 159(6): 1083-1089.

Miller, M.M., Scott, E.L., Trost, Z. Hirsh, A.T. (2016). Perceived Injustice is Associated with Pain and Functional Outcomes in Children and Adolescents with Chronic Pain: A Preliminary Examination. *J Pain* 17(11): 1217-1226

Moderator: Dr. R. Bhandari (Stanford University School of Medicine, Menlo Park, US)

10:15 - 10:35

Leverage LHS registries to actively engage the patient and family in pain management treatment

Dr. R. Bhandari (Stanford University School of Medicine, Menlo Park, US)

Scientific Programme

10:35 - 10:55

What to consider when implementing a LHS registry

Dr. E. Scott (University of Michigan, Ann Arbor, US)

10:55 - 11:15

How an LHS fosters a shared understanding of youth presenting with overlapping pain conditions

Dr. D. Logan (Boston Children's Hospital, Boston, US)

11:15 - 11:35

Utilization of Learning Health Systems to enhance clinical intervention and research in pediatric chronic conditions

M. Miller (Indiana University-Purdue University in Indianapolis, Indianapolis, US)

Scientific Programme

10:15 - 11:45

Parallel workshop, Samarkand

Regular Workshop Session III - Workshop 15 Comparing Apples to Apples? A Multidisciplinary Examination of the Efficacy of Intensive Interdisciplinary Pain Treatment for Youth with Abdominal Pain, Headache, or Musculoskeletal Pain

Summary of presentation: Chronic pain is common among children and adolescents; 1 in 4 youth experience chronic pain, most commonly headache, abdominal pain, and musculoskeletal pain (King 2011). Chronic pain is highly disabling, including physical impairment, school absence, and disruption in developmental activities. Intensive interdisciplinary pain treatment (IIPT) programs see youth with the highest levels of chronic pain and disability who have not succeeded in outpatient treatment. Traditionally, IIPT programs were designed for a musculoskeletal pain population, as these patients are often the most impaired from a physical standpoint (e.g., using assistive devices for mobility). In recent years, many IIPT programs have expanded their model to treat highly disabled children with various types of chronic pain, including headache and abdominal pain. However, no formal research has examined the efficacy of IIPT for patients with non-musculoskeletal pain presentations.

Youth completing IIPT programs show robust short- and long-term improvements in pain, function, and psychological outcomes (Hechler 2014). In the pediatric pain literature, there are differences in pain presentation between diagnostic groups; children with musculoskeletal pain have higher levels of functional disability and somatic symptoms compared to children with abdominal pain and headache (Logan 2013). However, in an IIPT setting, it is unknown whether pain presentation or program outcome differs between pain diagnostic groups. This workshop includes speakers from three international IIPT programs (US and Canada) and two disciplines (psychology and physical therapy) examining differences in functional, psychological, and physical outcomes by various pain diagnostic groups (musculoskeletal, headache, and abdominal pain). Results of their studies show that while some differences exist between pain diagnostic groups in pain presentation, generally all patients benefitted from IIPT. Improved understanding of the nuances between pain populations could lead to improved IIPT program outcomes and help foster a better partnership with children and families in their care and pain management.

References: Hechler T, Kanstrup M, Holley AL, Simons LE, Wicksell R, Hirschfeld G, Zernikow B. Systematic review on intensive interdisciplinary pain treatment of children with chronic pain. *Pediatrics*. 2015 Jun 1;ped-2014.

King S, Chambers CT, Huguet A, MacNevin RC, McGrath PJ, Parker L, MacDonald AJ. The epidemiology of chronic pain in children and adolescents revisited: a systematic review. *Pain*. 2011 Dec 1;152(12):2729-38.

Logan DE, Williams SE, Carullo VP, Claar RL, Bruehl S, Berde CB. Children and adolescents with complex regional pain syndrome: more psychologically distressed than other children in pain?. *Pain Research and Management*. 2013;18(2):87-93.

Moderator: Dr. S. Williams (Cincinnati Children's Hospital, Cincinnati, US)

10:15 - 10:35

Changes in Functional Disability and Pain for Pediatric IIPT Patients with Abdominal Pain, Headache, and Musculoskeletal Pain

Dr. S. Williams (Cincinnati Children's Hospital, Cincinnati, US)

Scientific Programme

- 10:35 - 10:55** **What are the impacts of IIPT? The experiences and perceptions of youth with chronic pain and their parents**
 K. Hurtubise (University of Sherbrooke, Sherbrooke, CA)
- 10:55 - 11:15** **Psychological Similarities and Differences amongst Pediatric IIPT Patients with Abdominal Pain, Headache, and Musculoskeletal Pain**
 Dr. C. Conroy (Boston Children's Hospital, Waltham, US)
- 11:15 - 11:35** **Measuring Physical Function and Disability in Children with Non-Musculoskeletal Pain Complaints**
 J. Shulman (Boston Children's Hospital, Waltham, US)
- 12:30 - 13:30** **Author Attended Poster Session 2**
- Poster session, Poster exhibition
- 13:30 - 15:00** **Regular Workshop Session IV - Workshop 16: Thinking outside the diagnostic box: advancing how we think, write and talk about children's pain**
- Parallel workshop, Sydney
- Summary of presentation: How we talk about pain – either in publications, in the way we frame symptoms or communicate with patients – reflects how we think about pain. Sometimes names describe the symptom (e.g. irritable bowel disorder), sometimes they have no relationship to the entity and may be a person or place (e.g. Crohn Disease, Lyme disease), and sometimes they may describe the underlying pathology (e.g. small fiber neuropathy). Our current nomenclature has been a victim of the mind/body duality postulating either physical or psychological causes, although various fields of research have begun to examine the intricate interaction between the two. The name for the category of non-progressive disorders that are characterized largely by pain without obvious anatomical or physiologic pathology has been in flux for centuries. These are entities whose etiologies have not yet been discovered, may be multifactorial and part of a continuum of biological entities (ie endophenotypes).
- Those entities require a category as they have many similar symptomatic characteristics, often overlap, respond to a variety of psychotropic or even non-specific treatments. Currently in use is functional disorder but that may change to chronic primary pain disorder with the new ICD 11. This workshop aims to review new data with regard to newly defined ICD-11 diagnosis of chronic primary pain condition and provide clinicians with an empirical overview of specific and non-specific interventions, as well as concrete suggestions for harnessing the clinical encounter to provide pain relief for children.
- References: 1) Schechter, N. L. (2014). Functional pain: Time for a new name. *JAMA pediatrics*, 168(8), 693-694.
 2) Simmons, K., Ortiz, R., Kossowsky, J., Krummenacher, P., Grillon, C., Pine, D., & Colloca, L. (2014). Pain and placebo in pediatrics: A comprehensive review of laboratory and clinical findings. *PAIN*, 155(11), 2229-2235.
- Moderator: Dr. J. Kossowsky (University of Basel, Basel, CH)

Scientific Programme

- 13:30 - 13:50** **Harnessing psychosocial and non-specific treatment approaches in pediatric primary pain**
Dr. J. Kossowsky (University of Basel, Basel, CH)
- 13:50 - 14:10** **Giving pain a name: the implications of nomenclature**
Prof. Dr. N. Schechter (US)
- 14:10 - 14:30** **Words that hurt and words that heal: the therapeutic encounter as a tool to manage children's pain**
Dr. T. Oberlander (University of British Columbia, Vancouver, CA)
- 14:30 - 14:50** **Reframing chronic pain: Lessons learned from past trials and implications for future research**
H. Koechlin (Universität Basel, Basel, CH)

Scientific Programme

13:30 - 15:00

Parallel workshop, Singapore

Regular Workshop Session IV - Workshop 17: Pain in children and adolescents with intellectual and developmental disabilities - time to act!

Summary of presentation: Children and adolescents with intellectual and developmental disabilities (IDD) are at increased risk for pain as a secondary condition. Etiologies of pain often include surgical, procedural, gastrointestinal, neuromuscular, and rehabilitative-related pain. The likelihood for pain increases with the severity of the disability meaning that those with the most severe impairments are at most risk for pain (Breau et al., 2003), yet this group typically has the least ability to communicate their pain. Disturbances in cognition and communication reduce the individual with IDD's ability to self-report their pain. Moreover, indicators of pain in this group are often ambiguous, idiosyncratic and diminished, and often misinterpreted by caregivers as caused by stress or agitation (Belew et al., 2014). The last decade of pain research in IDD has focused on the creation of pain assessment tools. While this work has adequately highlighted the problem of pain in IDD and has resulted in multiple pain assessment tools for use in clinical practice; there is little evidence of impact on patient care. In fact, both clinical experience and research indicate that pain is still undertreated (Barney, et al., 2017). The majority of existing research describes the problem, but little research has addressed treatment interventions although there is an urgent need for clinical practice change. The aim of this workshop is to describe current knowledge on pain in children and adolescents with IDD and present examples of dissemination of research findings into clinical practice, as well as ongoing and planned intervention studies.

References:

Breau, L.M., Camfield, C.S., McGrath, P.J., Finley, G.A. (2003). The incidence of pain in children with severe cognitive impairments. *Arch Pediatr Adolesc Med.* 2003;157(12):1219-1226. DOI:10.1001/archpedi.157.12.1219

Belew JL, Barney CC, Schwantes SA, Tibboel D, Valkenburg AJ, Symons FJ. Pain in children with intellectual or developmental disabilities. In: McGrath PJ, Stevens BJ, Walker SM, Zempsky WT, editors. *Oxford Textbook of Paediatric Pain*. Oxford: Oxford University Press; 2014. p. 147-56.

Barney, C.C., Merbler, A.M., Quest, K., Byiers, B.J., Wilcox, G.L., Schwantes, S., Roiko, S.A., Feyma, T., Beisang, A., & Symons, F.J. (2017). A case-controlled comparison of postoperative analgesic dosing between girls with Rett syndrome and girls with and without developmental disability undergoing spinal fusion surgery. *Pediatric Anesthesia*. doi.org/10.1111/pan.13066

Moderator: Prof. F. Symons (University of Minnesota, Minneapolis, US)

13:30 - 13:50

Do we know what we need to know to act now to assess pain in children with IDD?

Prof. F. Symons (University of Minnesota, Minneapolis, US)

13:50 - 14:10

Clinical implementation of evidence-based pain assessment and treatment practices in IDD

Dr. C. Barney (Gillette Children's Specialty Healthcare, Saint Paul, US)

14:10 - 14:30

Tell us about pain and what will make it better - devising a patient/parent-directed pain intervention in children/adolescents with cerebral palsy - The CPPain-project

Dr. R.D. Andersen (Telemark Hospital, Skien, NO)



CHILDREN AND FAMILIES AS PARTNERS IN PAIN MANAGEMENT
12TH INTERNATIONAL SYMPOSIUM ON PEDIATRIC PAIN
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Scientific Programme

14:30 - 14:50

Let's Talk About Pain: Improving Respite Workers' Pain-Related Knowledge and Skill Use Through an Empirically-Informed Training Program

L. Genik (University of Guelph, Guelph, CA)

Scientific Programme

13:30 - 15:00

Parallel workshop, Rio

Regular Workshop Session IV - Workshop 18: The Bigger Picture: The role of social, emotional, and cognitive development in shaping pain responses across early childhood

Summary of presentation: The first years of life are replete with painful events, ranging from everyday scrapes and bruises to pain associated with medical care (e.g., immunizations). The biological process of nociception in early childhood does not develop in isolation. Rather it influences and is influenced by the rapid cognitive and social development. It can be argued that at no time is this confluence of biopsychosocial dimensions of pain greater than in early childhood. For instance, child pain experiences evoke verbal as well as non-verbal parent-child interactions, which considerably evolve with the child's developing language and communication skills. Further, children's understanding and self-report of pain rapidly changes with children's cognitive development throughout the early years. Finally, the influence of pain in infancy cascades far beyond the momentary pain experience affecting children's short- and long-term cognitive-developmental outcomes (e.g., memory, attention). The proposed symposium will examine how psycho-social aspects of a child's pain experiences evolve throughout early childhood, most notably influenced by parent-child interactions during everyday pain experiences in home, daycare, and medical contexts, parent-child conversations about past pain, and children's ability to self-report pain. The panel consists of an international group of scientists from three continents, applying a multi-dimensional developmental lens to pediatric pain research in the clinic, lab, and real-world settings.

At the end of this symposium, attendees will be able to:

- discuss new directions in harnessing the power of parents to manage pain in medical contexts.
- understand more about the development of children's ability to self-report multi-dimensional aspects of an acute pain experience.
- understand optimal assessment techniques to assess the dynamics of caregiver-child interactions towards preschoolers' everyday pain experiences within natural settings.
- understand how parents and children reminisce about past autobiographical events involving pain and sadness, as well as how these narratives are associated with children's prosocial reactions.

References: Badovinac, S., Gennis, H., Riddell, R. P., Garfield, H., & Greenberg, S. (2018). Understanding the relative contributions of sensitive and insensitive parent behaviours on infant vaccination pain. *Children*, 5(6), 80. doi:10.3390/children5060080

Bandstra, N. F., Chambers, C. T., McGrath, P. J., & Moore, C. (2011). The behavioural expression of empathy to others' pain versus others' sadness in young children. *Pain*, 152(2), 1074-1082. doi: 10.1016/j.pain.2011.01.024.

von Baeyer C.L., Jaaniste, T., Vo, H. L. T., Brunsdon, G., Lao, H. C., & Champion, G. D. (2017). Systematic review of self-report measures of pain intensity in 3- and 4-year-old children: Bridging a period of rapid cognitive development. *Journal of Pain*, 18 (9), 1017-1026. doi: 10.1016/j.jpain.2017.03.005

Scientific Programme

- 13:30 - 13:50** **Managing infant pain: Is preventing insensitivity better than promoting sensitivity?**
Dr. R. Pillai Riddell (York University, Toronto, CA)
- 13:50 - 14:10** **Children's ability to provide multi-dimensional self-report of acute pain experiences: Cognitive-developmental factors**
Dr. T. Jaaniste (Sydney Children's Hospital, Randwick, Sydney, AU)
- 14:10 - 14:30** **The role of caregiver responses in shaping pre-schoolers pain responses in natural settings**
Dr. L. Caes (University of Stirling, Stirling, UK)
- 14:30 - 14:50** **Co-constructing the past: Examining mother- and father-child narratives about past events involving pain versus sadness**
M. Pavlova (University of Calgary, Calgary, CA)

Scientific Programme

Parallel workshop, Osaka

13:30 - 15:00

Regular Workshop Session I - Workshop 5: Clinical Application of Mindfulness for Adolescents with Chronic Pain Conditions and their Parents: Lessons learned from In person to e health Modalities.

Summary of presentation: Mindfulness based interventions (MBIs) are emerging as promising interventions to target the distress and uncertainty that often accompany health conditions. Mindfulness is a form of awareness that involves “paying attention on purpose in the present moment, and nonjudgmentally.” In MBIs, individuals with chronic pain are taught to approach rather than avoid painful sensations and assume a dispassionate attitude towards catastrophic cognitions (I can’t stand the pain) and emotions (anxiety and frustration) that often accompany and exacerbate pain. Over time participants learn that while pain may be unavoidable, suffering and distress are optional. While a growing body of research exists to demonstrate the effectiveness of MBIs for adults with chronic pain, studies assessing MBIs for paediatric chronic pain are just emerging. MBIs delivered to adolescents with chronic pain appear to be acceptable and feasible for adolescents attending tertiary care pain clinic and show some encouraging preliminary outcomes. However, in most studies between 30- 50% of those approached to participate in in-person groups are unable to do so because they live too far from hospital. In the current workshop, participants will learn about 1) findings from a research program on an 8 week in- person MBI specifically tailored to adolescents with chronic pain, including session content, experiential exercises and consideration of differences in mindfulness content for chronic versus relapsing/remitting conditions 2) description and results of a 2 x weekly mindfulness group for parents of children with chronic pain and 3) challenges and benefits of providing MBIs online to adolescents, including practical suggestions from a study of adolescents with IBD.

References: Ruskin DA, Gagnon MM, Ahola Kohut S, Stinson JN, Walker KS. A Mindfulness Program Adapted for Adolescents With Chronic Pain: Feasibility, Acceptability, and Initial Outcomes. Clin J Pain. 2017 Nov; 33(11):1019-1029. PMID: 28328699

Wallace DP, Woodford B, Connelly M. Promoting psychological flexibility in parents of adolescents with chronic pain: Pilot study of an 8-week group intervention. Clinical Practice in Pediatric Psychology. 2016;4:405-416.

Moderator: Dr. D. Ruskin (Hospital for Sick Children, Toronto, CA)

13:30 - 13:50

Findings from an 8 week In-Person Mindfulness Group: Specific Content Adaptations for Adolescents with Chronic Pain

Dr. D. Ruskin (Hospital for Sick Children, Toronto, CA)

13:50 - 14:10

Mindfulness treatment for parents to support adolescent coping and family functioning.

Dr. D. Wallace (Children’s Mercy hospital, Kansas City, US)

14:10 - 14:30

Providing Acceptance and Commitment Therapy Online to Adolescents: Lessons Learned and Things to Consider

Dr. D. Ruskin (Hospital for Sick Children, Toronto, CA)

Scientific Programme

13:30 - 15:00

Parallel workshop, Samarkand

Regular Workshop Session IV - Workshop 20: The Asian experience - Prevalence and Parenting Needs

Summary of presentation: It is well recognised that parental behaviour and attitudes affect engagement and prognosis for a child with chronic pain. While mainstream thinking about parenting and the parent-child relationship has been largely guided by Western cultural beliefs and images, Asian parenting is typically more authoritarian where parents are seemingly strict with high expectations of the child's duty to family and society and maintenance of "face" or social standing, through stoicism and self-sufficiency. As such, even admission of pain may be construed as weakness and a source of shame for the family. As a result, parents are much less willing to believe the child in pain, to seek medical help and to engage in psychological therapies. This results in poor awareness and even poorer support in a region where pediatric chronic pain exists indubitably. Fortunately, with the slow occidentalisation of the Asian region, more children and parents are coming forward to seek help for this significant health and socioeconomic scourge.

In this workshop we aim to:

- (1) examine the prevalence of pediatric chronic pain and associated psychological factors in more than 1000 children across Selangor, Malaysia,
- (2) describe the psychological profile of the parent-child dyad presenting to our Singapore clinic and expound on the challenges that parents describe in their interactions with their child with chronic pain
- (3) discuss parental responses to chronic pain and the support that parents of children with chronic pain have expressed through our Pain nurse's telehealth experience.

References: 1. Adelman H TL, Alontaga JV, Durban JM, et al. Cultural differences in parenting practices: What Asian American Families can teach us. *Sch Res Journals*. 2014;2(2):1-24. doi:10.1073/pnas.0703993104

2. Simons LE, Logan DE, Chastain L, Cerullo M. Engagement in multidisciplinary interventions for pediatric chronic pain: Parental expectations, barriers, and child outcomes. *Clin J Pain*. 2010;26(4):291-299. doi:10.1097/AJP.0b013e3181cf59fb
3. Reid K, Lander J, Scott S, et al. What do the parents of children who have chronic pain expect from their first visit to a pediatric chronic pain clinic? *Pain Res Manag*. 2010;15(3):158-162. <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=105036834&site=ehost-live&scope=site>.

Moderator: Prof. Z. Jamil Osman (Cyberjaya University College of Medical Sciences, Cyberjaya, MY)

13:30 - 13:50

The prevalence of chronic pain amongst adolescents and associated psychosocial factors in Selangor, Malaysia

Prof. Z. Jamil Osman (Cyberjaya University College of Medical Sciences, Cyberjaya, MY)

13:50 - 14:10

Understanding parents' perceptions of their child's pain and working effectively with them to improve outcomes.

J. Especkerman (Kandang Kerbau Women's and Children's Hospital, Singapore, SG)

14:10 - 14:30

Asian parenting in a child with chronic pain

N. Jayakrishnan (KKH, Singapore, SG)

Scientific Programme

15:30 - 17:00

Parallel workshop, Sydney

Regular Workshop Session V - Workshop 21: Exploring the critical role of parents in pediatric pain: From managing needles to complex rehabilitation.

Summary of presentation: Parenting is widely recognised to be rewarding, challenging and a defining life event. Yet, parenting a child who experiences pain can pose additional stressors and challenges for the parent. Such challenges are varied and may include managing needle fear in an acute vaccination setting to liaising with educational professionals in the context of supporting a child with chronic pain to engage with school. Of importance is how parents respond to their child or young person when they are experiencing pain, both acutely and when engaging with pain related treatment. Importantly, it is also critical to consider the impact of such parental outcomes and behaviour on the functioning of young people and parents themselves. Using a variety of complementary qualitative and quantitative methodologies, this symposium will highlight and explore the specific nature of parenting behaviours and cognitions across varied pain acute and chronic pain settings. A particular focus will be placed on critically considering outcomes of parental behaviour for parents, children and young people.

At the end of this symposium, attendees will be able to:

- describe what is known about parenting during pediatric acute pain
- identify the importance of considering non-verbal responses, including vocal cues, facial expressions, and physiology in parent-child interactions during acute pain
- understand how mothers and fathers experience and make sense of 'resilience' in the context of parenting a young person with chronic pain.
- reflect on what can be learned from parents who display resilience in terms of promoting better outcomes for young people who experience chronic pain and their parents.
- consider how clinicians can create impactful parent interventions that support change in the child.
- understand parental perceptions of ACT based treatment for pediatric chronic pain.

References: Eccleston, C. , Fisher, E., Law, E., Bartlett, J. and Palermo, T.M. (2015) 'Psychological interventions for parents of children and adolescents with chronic illness (Review)', Cochrane Database of Systematic Reviews, (4), p. CD009660.

Kemani, M., Kanstrup, M., Jordan, A., Caes, L. & Gauntlett-Gilbert, J. (in press). Acceptance and commitment therapy for adolescents with chronic pain and their parents: evaluation of parent and adolescent outcomes and the relation between parent psychological flexibility and adolescent pain acceptance. *Journal of Pediatric Psychology*. <https://doi.org/10.1093/jpepsy/jsy031>

Moderator: Dr. C.M. McMurtry (University of Guelph, Guelph, CA)

Scientific Programme

- 15:30 - 15:50** **Parenting in acute pain contexts: State of the art and future directions**
Dr. C.M. McMurtry (University of Guelph, Guelph, CA)
- 15:50 - 16:10** **Bouncing back: Parental resilience in the context of pediatric chronic pain**
Dr. A. Jordan (University of Bath, Bath, UK)
- 16:10 - 16:30** **Do parents need to change? Parent mediation of child improvements in interdisciplinary treatment**
Dr. J. Gauntlett-Gilbert (Royal United Hospitals Trust, Bath, UK)
- 16:30 - 16:50** **Parent experiences of Acceptance and Commitment Therapy (ACT) treatment for pediatric chronic pain**
Dr. M. Kanstrup (Karolinska Institutet,, Stockholm, SE)

Scientific Programme

15:30 - 17:00

Parallel workshop, Singapore

Regular Workshop Session V - Workshop 22: Tackling the problem of infant pain relief - multidimensional approaches to assessing analgesics

Summary of presentation: Despite the short-term effects and possible long-term consequences of pain in early life, pharmacological analgesics are infrequently given for acute painful procedures due to concerns regarding side effects, and a lack of evidence of efficacy or appropriate doses. The necessity to rely on surrogate measures of pain in infants and the ethical challenges associated with conducting clinical trials mean that it can be difficult to assess analgesics in the infant population. In this workshop we will discuss the current evidence for the use of pharmacological interventions for procedural pain in infants, and describe new approaches that can be used to gain a better mechanistic understanding of analgesic action, including multimodal assessments of pain (such as behaviour, physiology and brain activity) and the use of pharmacokinetic and pharmacodynamic modelling.

Why is this workshop of importance?

Infants in neonatal intensive care receive multiple painful procedures a day as part of their essential care. These procedures are thought to have long-term consequences, not only on pain sensitivity but also on brain structure and function, and on cognitive ability. However, analgesics can also have short-term and long-term adverse effects. New approaches to assessing analgesics, which provide a more detailed understanding of efficacy, safety and action in infants, are essential to shed light on optimising analgesic strategies in this vulnerable population.

Fund of knowledge the workshop will provide

This workshop will provide attendees with knowledge of surrogate markers of pain in infants which can be used to assess analgesics; an appreciation of the evidence for the use of different analgesics in infants; and an awareness of how we can gain a better understanding of analgesic action in future clinical trials to optimise efficacy and minimise side effects.

References: Baarslag et al. (2017) Paracetamol and morphine for infant and neonatal pain; still a long way to go? *Expert Rev Clin Pharmacol*. 10(1): 111-126.

Moultrie et al. (2017) Improving the treatment of infant pain. *Curr Opin Support Palliat Care*. 11(2): 112-17.

Moderator: Dr. C. Hartley (University of Oxford, Oxford, UK)

15:30 - 15:50

Investigating analgesic efficacy and safety in infants using physiology

Dr. C. Hartley (University of Oxford, Oxford, UK)

15:50 - 16:10

Fentanyl for procedural pain in infants

C. McNair (University of Toronto, Toronto, CA)

16:10 - 16:30

Pharmacokinetics and pharmacodynamics of analgesics in infants

Prof. Dr. J. van den Anker (University of Basel Children's Hospital, CH)

16:30 - 16:50

Using noxious-evoked brain activity to assess analgesic efficacy in infants

D. Gursul (University of Oxford, Oxford, UK)

Scientific Programme

15:30 - 17:00

Parallel workshop, Rio

Regular Workshop Session V - Workshop 23: Mind-body perspectives on chronic post surgical pain in children: role of parent-family interactions, genetics-epigenetics and mindfulness based meditation

Summary of presentation: Challenges in pediatric pain management lead to inadequately treated acute postsurgical pain and a heightened risk for chronic postsurgical pain (CPSP). CPSP occurs in 14.5-38% of the 5 million children undergoing surgery every year. CPSP in adolescents leads to depression, poorer grades, reduced emotional well-being, and attention problems. In fact, 35%-80% of people addicted to prescription opioids report they were first exposed to opioids for legitimate treatment of pain, including postsurgical pain. Opioid prescribing rates among adolescents have nearly doubled from 1994 to 2007, and drug overdose deaths in US teens climbed 19% from 2014 to 2015, from 3.1 to 3.7 deaths per 100,000. Approximately half of these deaths were related to respiratory depression from use of prescription pain relievers. It is a major life stressor for parents and caregivers given the financial and social constraints posed by the need for frequent physician visits. CPSP occurs not only due to widespread transcriptional dysregulation and sensitization throughout the pain neuraxis. Family dynamics, parent-child interactions, psychosocial factors and genetic-environmental interactions play a major role in acute to chronic pain transitions. Our workshop is timely as it provides wide ranging perspectives on parent-child, mind-body connections and neural processes underlying chronic pain transitions in children; speakers will also discuss mechanisms and efficacy of opioid sparing mindfulness based analgesia and anxiety relief for prevention and management of chronic pain. Novel complementary research findings presented by our expert panel of multidisciplinary speakers (pediatric pain clinician-scientist, pediatric psychologist and a basic science mindfulness and brain imaging expert) will be leveraged by psychophysical, psychosocial, pharmacological, systems biology integrated genomic, epigenetic and brain imaging data from clinical research and animal studies.

References: Rabbitts JA, Fisher E, Rosenbloom BN, Palermo TM. Prevalence and Predictors of Chronic Postsurgical Pain in Children: A Systematic Review and Meta-Analysis. *The journal of pain : official journal of the American Pain Society* 2017; 18(6): 605-14.

Chidambaran V, Zhang X, Martin LJ, et al. DNA methylation at the mu-1 opioid receptor gene (OPRM1) promoter predicts preoperative, acute, and chronic postsurgical pain after spine fusion. *Pharmacogn Pers Med* 2017; 10: 157-68

Sieberg CB, Smith A, White M, Manganella J, Sethna N, Logan DE (in press). Changes in Maternal and Paternal Pain-Related Attitudes, Behaviors, and Perceptions across Pediatric Pain Rehabilitation Treatment: A Multilevel Modeling Approach. *Journal of Pediatric Psychology*. Sieberg CB, Manganella J, Manalo G, Simons LE, Hresko MT. (in press).

Zeidan, F., Martucci, K.T., Kraft, R.A., McHaffie, J.G., and Coghill, R.C. (2013). Neural correlates of mindfulness meditation-related anxiety relief. *Social Cognitive and Affective Neuroscience*.

Zeidan, F., & Vago, D. Mindfulness meditation-based pain relief: A mechanistic account. (In Press). *Annals of the New York Academy of Sciences*.

Moderator: Prof. V. Chidambaran (Cincinnati Childrens Hospital, Cincinnati, US)

Scientific Programme

- 15:30 - 15:50** **Genomic and epigenetic enriched processes influencing chronic postsurgical pain and anxiety sensitivity in children**
Prof. V. Chidambaran (Cincinnati Childrens Hospital, Cincinnati, US)
- 15:50 - 16:10** **Parent-child interactions and psychosocial factors in pediatric chronic postsurgical pain**
Prof. C. Sieberg (Boston Children's Hospital and Harvard Medical School, Boston, US)
- 16:10 - 16:30** **Mindfulness-based analgesia and anxiety relief: efficacy and unique mechanisms regulating pain**
Dr. F. Zeidan (Wake Forest School of Medicine, Winston-Salem, US)

Scientific Programme

15:30 - 17:00

Parallel workshop, Osaka

Regular Workshop Session V - Workshop 24: Quantitative Sensory Testing in Pediatric Pain: Methods, Perspectives and Applications

Summary of presentation: Quantitative Sensory Testing (QST) is a non-invasive method that has been used extensively in clinical pain research over the past 3 decades. The term QST collectively refers to a group of procedures that assess perceptual responses to sensory stimuli with the purpose of assessing somatosensory function. QST has significantly advanced our understanding of the neurobiological mechanisms and psychosocial influences that underpin typical and atypical sensory processing in adults, which in turn, has aided in the identification and refinement of tailored pain therapies. QST has more recently been applied to pain research in children. However the application of QST to pediatric populations has seen unique challenges, such as the complexity of somatosensory development across childhood. There also remains variability in its use with children. This workshop will provide a comprehensive overview of the use of QST in pediatric pain and will present cutting edge research using this modality to assess sensory processing in children. In this workshop, an international and interdisciplinary panel of speakers will discuss the utility and practical use of various QST paradigms (e.g., sensory phenotyping, conditioned pain modulation), present data on sensory profiles of various clinical populations (e.g., children with neurodegenerative disorders, children with chronic pain, young adults born extremely preterm), and share QST applications for the development of novel therapeutics. Common ethical and methodological issues associated with the use of QST in children, and strategies for dealing with these issues, will be presented. Finally, perspectives on meaningful patient and family engagement in QST studies will be discussed. This workshop has relevance for clinicians and scientists working in a broad range of domains including: neuroscience, translational research, psychosocial care, and medical management of pediatric pain.

References: Blankenburg, M., Boekens, H., Hechler, T., Maier, C., Krumova, E., Scherens, A., ... Zernikow, B. (2010). Reference values for quantitative sensory testing in children and adolescents: Developmental and gender differences of somatosensory perception. *PAIN*, 149(1), 76-88.
<https://doi.org/10.1016/j.pain.2010.01.011>

Cornelissen, L., Donado, C., Kim, J., Chiel, L., Zurakowski, D., Logan, D. E., ... Berde, C. B. (2014). Pain hypersensitivity in juvenile idiopathic arthritis: a quantitative sensory testing study. *Pediatric Rheumatology*, 12.
<https://doi.org/10.1186/1546-0096-12-39>

Walker, S. M., O'Reilly, H., Beckmann, J., & Marlow, N. (2018). Conditioned pain modulation identifies altered sensitivity in extremely preterm young adult males and females. *British Journal of Anaesthesia*.
<https://doi.org/10.1016/j.bja.2018.05.066>

Moderator: Dr. S. Walker (University College London, London, UK)

15:30 - 15:50

Conditioned Pain Modulation in Children, Adolescents, and Young Adults

Dr. S. Walker (University College London, London, UK)

15:50 - 16:10

Bridging Bench and Bedside: Developing Novel Therapies for Sensory Abnormalities in Children

L. Cornelissen (Harvard Medical School, Boston, US)

Scientific Programme

16:10 - 16:30

QST in Pediatric Patients with Cerebral Palsy (CP) Implicates a Neuropathic Genesis of Pain Syndromes

M. Blankenburg (Olga hospital, Klinikum Stuttgart, Stuttgart, DE)

16:30 - 16:50

Practical Perspectives on the Use of QST in Pediatric Pain Research

P. Tutelman (Dalhousie University, Halifax, CA)

Scientific Programme

15:30 - 17:00

Parallel workshop, Samarkand

Regular Workshop Session V - Workshop 25: Innovative Methods of Assessment and Treatment of Chronic Pain in Pediatric Sickle Cell Disease: Unraveling the Acute to Chronic Pain Transition

Summary of presentation: Chronic pain in sickle cell disease (SCD) is complex and challenging to assess and treat with limited evidence-base to guide clinical care. There is increasing awareness that chronic pain is part of the pain experience for many adolescents with SCD, often co-occurring within the context of acute vaso-occlusive pain episodes and accounting for a significant amount of morbidity. Recently published diagnostic criteria for chronic SCD pain provide the fundamental groundwork for improved assessment of chronic SCD pain. However, the ability to identify and screen youth for chronic SCD pain and associated biopsychosocial risk factors within a clinical context to then guide effective treatment remains limited.

This workshop will further advance novel assessment and treatment methods for chronic SCD pain by: 1) highlighting evidence of biopsychosocial risk factors for chronic SCD pain, 2) offering insights into the acute to chronic SCD pain transition, and 3) illustrating a systematic, patient-centered approach to treatment for chronic SCD pain. Guided by the biopsychosocial framework, we will first present on psychosocial risk factors associated with chronic SCD pain and risk factors predicting the transition from acute to chronic SCD pain over time. The clinical utility and application of a brief pain screening tool to identify youth with chronic SCD pain will also be discussed. We will then provide evidence of biological risk factors for the transition from acute to chronic SCD pain. This will include data supporting increased nervous system sensitization with a focus on quantitative sensory testing, changes in Substance P, and will highlight features of neuropathic pain evident among patients with SCD. The workshop will conclude with the development and efficacy of a novel m-health self-management program tailored for adolescents with SCD pain. Collectively, the workshop will provide innovative methods to guide improved assessment and treatment of chronic pain for youth with SCD.

References: Brandow, A. M., Zappia, K. J., & Stucky, C. L. (2017). Sickle cell disease: a natural model of acute and chronic pain. *PAIN*, 158(Suppl 1), S79-S84. doi:10.1097/j.pain.0000000000000824

Dampier C, Palermo TM, Darbari DS, Hassell K, Smith W, Zempsky W. AAPT Diagnostic Criteria for Chronic Sickle Cell Disease Pain. *Journal of Pain*. 2017. Epub 2017/01/10. doi: 10.1016/j.jpain.2016.12.016. PubMed PMID: 28065813.

Sil, S., Cohen, L. L., & Dampier, C. (2016). Psychosocial and Functional Outcomes in Youth with Chronic Sickle Cell Pain. *Clinical Journal of Pain*, 32(6), 527-533. doi:10.1097/ajp.0000000000000289

Moderator: Dr. S. Sil (Emory University School of Medicine, ATLANTA, US)

15:30 - 15:50

Identifying youth with chronic sickle cell pain: How pain and psychosocial functioning change over time

Dr. S. Sil (Emory University School of Medicine, ATLANTA, US)

15:50 - 16:10

Mechanisms of pain in sickle cell disease: Thinking outside of the sickled cell

Dr. A. Brandow (Medical College of Wisconsin, Milwaukee, US)



CHILDREN AND FAMILIES AS PARTNERS IN PAIN MANAGEMENT
12TH INTERNATIONAL SYMPOSIUM ON PEDIATRIC PAIN
WWW.ISPP2019.ORG

Scientific Programme

16:10 - 16:30

User-centered adaptation of the iCanCope self-management platform for youth with sickle cell pain

Dr. J. Stinson (Hospital for Sick Children, Toronto, CA)



CHILDREN AND FAMILIES AS PARTNERS IN PAIN MANAGEMENT
12TH INTERNATIONAL SYMPOSIUM ON PEDIATRIC PAIN
WWW.ISPP2019.ORG

Scientific Programme

Wednesday, 19 June 2019

08:00 - 09:00

Other session, San Francisco

Media Festival

Chair: Dr. L. Kuttner (CA)

Scientific Programme

09:05 - 10:35

Parallel workshop, Sydney

Regular Workshop Session VI - Workshop 26: Placebo effects in children: sensory perception, executive function and potential applications in the clinical setting

Summary of presentation: Chronic pain affects 11% - 38% of children and adolescents, impairing emotional well-being, academic success, and social engagement. It represents a persistent multifaceted condition that involves neurological, psychological, and environmental interrelated processes. Moreover, it is frequently resistant to pharmacological treatment and the longterm effectiveness of psychological interventions may remain uncertain.

Randomized controlled trials comparing analgesic drugs with placebos have consistently revealed strong placebo effects. Thus, the placebo component of any genuine analgesic treatment is hypothesized to contribute significantly to the therapeutic effect of any treatment.

Recent studies show that placebo effects are strong and consistent in pediatric drug trials. However, the mechanisms underlying these responses in children, as well as the cognitive and neural correlates of how learning, expectations and executive function shape placebo-induced analgesia remain poorly understood. Current knowledge raises critical and unanswered questions about the placebo effect in children. If placebos are not 'nothing', then what are they? Namely, what is the functional capacity/limitations of placebos in the pediatric pain context, and can we harness their power to manage pain in children?

This workshop will review the developmental character (i.e. age, cognition) of the placebo effect in children, how experimental manipulations of learning/conditions influence sensory perception and explore ways to harness its developmental character as a way to use the placebo effect in managing complex childhood pain. In particular, this workshop will focus on learning mechanisms, such as classical conditioning, and how this might influence thermal sensory perception in children. We will discuss how these relationships can be mediated by executive functioning, personality traits and states of self-efficacy, as well as the implications these findings might have for future research and clinical care.

References: Jensen, K. B., Kaptchuk, T. J., Kirsch, I., Raicek, J., Lindstrom, K. M., Berna, C., . . . Kong, J. (2012). Nonconscious activation of placebo and nocebo pain responses. *Proceedings of the National Academy of Sciences*, 109, 15959-15964. doi: 10.1073/pnas.1202056109

Deary, I. J., Bell, P. J., Bell, A. J., Campbell, M. L., & Fazal, N. D. (2004). Sensory discrimination and intelligence: Testing Spearman's other hypothesis. *The American Journal of Psychology*, 117, 1-18. doi: 10.2307/1423593

Wrobel, N. et al. Are Children the Better Placebo Analgesia Responders? An Experimental Approach. *J. Pain* 16, 1005-1011 (2015).

Moderator: Dr. T. Oberlander (University of British Columbia, Vancouver, CA)

09:05 - 09:25

Setting the scene: The developmental nature of the placebo effect in children

Dr. T. Oberlander (University of British Columbia, Vancouver, CA)

09:25 - 09:45

What is minimally required to obtain placebo analgesia? Age, cognition and the neural correlates of the placebo effect

Prof. K. Jensen (Karolinska Institutet, Stockholm, SE)

Scientific Programme

09:45 - 10:05

Executive Function mediates the association between sensory discrimination of thermal stimuli and the placebo effect in youth

Dr. R. Neuenschwander (University of Bern, Bern, CH)

10:05 - 10:25

Internal states of low self-efficacy can induce learned placebo effects on thermal sensation in youth

E. Weik (University of British Columbia, Vancouver, CA)

Parallel workshop, Singapore

09:05 - 10:35

Regular Workshop Session VI - Workshop 27: Rare pain disorders - stories of pins and needles, of genes and of success!

Summary of presentation: All over Europe and USA health care systems try to improve the early diagnosis and adequate treatment of people with rare conditions. Many of the rare diseases are associated with pain and some are also life-limiting like severe forms of Epidermolysis bullosa. A subgroup of rare conditions are pain conditions (like erythromelalgia or paroxysmal hemicrania) and some rare pain diseases are sub-types of more common pain conditions like migraine (f.e. hemiplegic migraine). Additionally, digital and genomic advances have given rise to a new era of individualized medicine, which could potentially lead to a better understanding, diagnosis and treatment of both rare and common pain phenotypes. Combining digital approaches to track patient's symptoms, behaviors, functionality and quality of life over time in response to interventions with analytical approaches that examine the associations between phenotype and genotype are key components in the development of more effective and personalized pain treatment. Research and publication on rare pain conditions is sparse and exchange of knowledge during congresses is even more important as in pain conditions that are heavily studied from several research groups around the world. Therefore the workshop will provide new data and the opportunity to exchange personal experience on rare paediatric pain conditions

References: 1. Zernikow et al. Paroxysmal hemicrania in children – long term outcome of Indomethacin treatment. In prep
 2. Kossowsky et al. Association between genetic variants and clinical symptoms among sub-classes of migraine and probable migraine. In prep
 3. Arthur et al. Pediatric erythromelalgia and SCN9A mutations: systematic review and single center case series. Manuscript under review

Moderator: Prof. Dr. B. Zernikow (DE)

09:05 - 09:25

Paroxysmal hemicrania and other trigeminal autonomic cephalalgias in children - from symptoms to long term outcome!

Prof. Dr. B. Zernikow (DE)

09:25 - 09:45

Erythromelalgia, paroxysmal extreme pain and related conditions - genes and challenges

Prof. C. Berde (Boston Children's Hospital, Boston, US)

09:45 - 10:05

Migraine or Carl the chameleon - spooky phenotypes and wild genotypes

Dr. J. Kossowsky (University of Basel, Basel, CH)

Scientific Programme

09:05 - 10:35

Parallel workshop, Rio

Regular Workshop Session VI - Workshop 28: Promoting Psychological Flexibility in Youth with Chronic Pain: Evidence from Acceptance and Commitment Therapies

Summary of presentation: Chronic and recurrent pain in children and adolescents results in physical, emotional, and social symptoms that negatively impact all aspects of quality of life. It is crucial to find transdiagnostic approaches to support management of chronic pain in these youth and their families. Acceptance and Commitment Therapy (ACT) is one model of treatment which has demonstrated versatility in its ability to address both physical and emotional experiences simultaneously. The focus of ACT is on fostering greater psychological flexibility; the ability to respond flexibly in the presence of external stressors and unwelcome, internal, thoughts, feelings, and physical sensations. It is therefore ideally suited to children and adolescents living with chronic or recurrent pain. There is a growing body of empirical support for ACT with adolescents and adults living with chronic pain (e.g., McCracken & Morley, 2014; Wicksell et al., 2007, 2011). This session aims to provide evidence to support the use of ACT in pediatric chronic pain as well as demonstrate ways to incorporate ACT into clinical practice.

This symposium will review research on ACT in a varied sample of youth living with chronic or recurrent pain conditions. First, Dr. Goubert will demonstrate how mindfulness and psychological flexibility, byproducts of ACT, influence and predict functioning in pediatric samples living with chronic pain and those undergoing scoliosis surgery. Next, Dr. Ahola Kohut will review the impact of mindfulness and ACT in adolescents living with inflammatory bowel disease. Lastly, Dr. Holmström will present results of an open trial of ACT for children with chronic pain.

References: McCracken, L. M., & Morley, S. (2014). The Psychological Flexibility Model: A Basis for Integration and Progress in Psychological Approaches to Chronic Pain Management. *The Journal of Pain*, 15(3), 221-234.

Wicksell, R. K. (2007). Values based exposure and acceptance in the treatment of pediatric chronic pain: from symptom reduction to valued living. *Pediatric Pain Letter*, 9, 13-20.

Wicksell, R. K., Olsson, G. L., & Hayes, S. C. (2011). Mediators of change in Acceptance and Commitment Therapy for pediatric chronic pain. *Pain*, 152(12), 2792-2801.

Chair: Dr. R. Wicksell (Karolinska University Hospital, Stockholm, SE)

09:05 - 09:25

Psychological flexibility as a predictor of physical and psychosocial functioning in youth with chronic pain and youth undergoing a major surgery

M. Beeckman (Ghent Health Psychology Lab, BE)

09:25 - 09:45

Acceptance and Commitment Therapy in Adolescents with Inflammatory Bowel Disease: Living with Uncertainty and Relapsing and Remitting Pain

Dr. D. Ruskin (Hospital for Sick Children, Toronto, CA)

09:45 - 10:05

Open clinical trial of Acceptance and Commitment Therapy for Children and Adolescents with chronic pain - outcome and characteristics of responders

Dr. R. Wicksell (Karolinska University Hospital, Stockholm, SE)

Scientific Programme

09:05 - 10:35

Parallel workshop, Osaka

Regular Workshop Session VI - Workshop 29: Pain in chronic critically ill children: How can parents and families help?

Summary of presentation: why is this workshop of importance and what fund of knowledge will it provide? (300 words) Pain management in chronic critically ill children is challenging, because these children experience numerous stressful and painful events that often require continuous analgesia and sedation. However, prolonged sedation increases the risk for delirium and benzodiazepine withdrawal syndrome. A pre-requisite of appropriate management involves adequate assessment of the child's pain and consideration of the wider context including the child's pain history, their response to pain and what interventions and strategies have been used in the past. The child's parents often have considerable experiential knowledge and expertise in relation to managing their child's pain and comfort. This knowledge and skill set will often have been developed over months and years of providing care to their child within the home setting. Parents develop expertise and are able to 'read' their child's body language, are often able to differentiate between pain and distress and they know what has worked and what has not worked in relation to their child's pain management. However, parents and families are rarely involved in the process, so their critically important contribution can be overlooked or ignored leading to suboptimal management of the child's pain. This workshop considers the particular challenges faced by professionals working within children's intensive care and managing the pain of a child with a chronic illness. The workshop also focuses on the experiences of parents and families as well as and how health professionals can best prepare parents to engage effectively in their child's pain care.

References: Harris, J., Ramelet, A. S., van Dijk, M., Pokorna, P., Wielenga, J., Tume, L., . . . Ista, E. (2016). Clinical recommendations for pain, sedation, withdrawal and delirium assessment in critically ill infants and children: an ESPNIC position statement for healthcare professionals. *Intensive Care Med*, 42(6), 972-986. doi:10.1007/s00134-016-4344-1

Carter, B., Arnott, J., Simons, J., & Bray, L. (2017). Developing a Sense of Knowing and Acquiring the Skills to Manage Pain in Children with Profound Cognitive Impairments: Mothers' Perspectives. *Pain Res Manag*, 2017, 2514920. doi:10.1155/2017/2514920

Moderator: Prof. Dr. A.S. Ramelet (CH)

09:05 - 09:25

Involvement of parents in pain management: what does the literature says about chronic critically ill children?

Prof. Dr. A.S. Ramelet (CH)

09:25 - 09:45

how parents and healthcare professionals experience the hospitalization of children with chronic conditions

C. Tosin (University of Verona, Verona, IT)

09:45 - 10:05

How to best prepare parents to be engaged in pain management of their child

Prof. B. Carter (Edge Hill University, Liverpool, UK)

Scientific Programme

09:05 - 10:35

Parallel workshop, Samarkand

Regular Workshop Session VI - Workshop 30: Ethics of conducting and publishing placebo/no treatment trials of analgesic effects of pain treatments for acute procedural pain in infants

Summary of presentation: High quality evidence suggests that breastfeeding healthy infants up to 12 months of age; providing skin-to-skin care for preterm infants, and giving small volumes of sucrose or glucose to preterm and term newborns and infants up to 12 months of age all produce analgesic effects during short lasting needle related procedures in infants. Given this strong evidence-base, there is no longer uncertainty about the effectiveness of these strategies in reducing pain during commonly performed painful needle related procedures of heel lance, venipuncture or vaccinations.

Nevertheless, studies evaluating analgesic efficacy and other pain treatments continue to be published that include placebo/no treatment group trials including preterm newborns, term newborns, and young infants beyond the neonatal period. The question of whether such studies breach the principal of Equipoise has been debated in the pediatric pain world.

This workshop, using the example of sweet solution analgesia, a much debated pain management strategy, will include a summary of the evidence to date along with arguments for and against continued exploration and subsequent publication of this pain management strategy. The workshop presenters include a clinical researcher, a journal section editor and an ethicist, who between them, will present on this important and controversial topic, highlighting the ethics of neonatal and infant pain research globally, and where such studies stand in terms of the set of ethical principles regarding human experimentation in the Declaration of Helsinki.

References: Harrison D, Larocque C, Bueno M, Stokes Y, Turner L, Hutton B, Stevens B. (2017). Sweet Solutions to Reduce Procedural Pain in Neonates: A Meta-Analysis. *Pediatrics*, 139(1). doi:10.1542/peds.2016-0955

Belliemi CV, Johnston CC. Analgesia, nil or placebo to babies, in trials that test new analgesic treatments for procedural pain. *Acta Paediatr* 2016; 105: 129-36

Belliemi, C., Taddio, A., Linebarger, J., & Lantos, J. (2012). Should an IRB approve a placebo-controlled randomized trial of analgesia for procedural pain in neonates? *Pediatrics*, 130(3), 550-553. <http://doi.org/10.1542/peds.2011-2910>

Moderator: Prof. D. Harrison (CHEO and University of Ottawa, Ottawa, CA)

09:05 - 09:25

Ethics of conducting placebo/no treatment trials of analgesic effects of sweet solutions in newborns and young infants

Prof. D. Harrison (CHEO and University of Ottawa, Ottawa, CA)

09:25 - 09:45

Ethics of publishing placebo/no treatment trials in pediatric pain

Prof. C. Chambers (IWK and Dalhousie University, Halifax, CA)

09:45 - 10:05

Biomedical ethics perspectives of the controversy surrounding placebo/no treatment groups in acute pain studies on infants

A. Shriver (University of Oxford, Oxford, UK)

Scientific Programme

11:00 - 11:45	Plenary session, San Francisco Plenary VII
11:00 - 11:45	Intergenerational pain transmission Prof. Dr. A.C. Willson (US)
11:45 - 12:30	Other session, San Francisco General meeting of members, IASP SIG on Pain in Childhood
13:00 - 13:45	Poster session, Poster exhibition Author Attended Poster Session 3
13:45 - 14:15	Other session, San Francisco Trainee Poster Prize Presentation

Scientific Programme

14:15 - 15:00

Plenary session, San Francisco

Plenary VIII - Early Career Award

<article>Dr. Tine Vervoort
Ghent University, Belgium

Tine Vervoort is a Research Professor at the Department of Experimental-Clinical and Health Psychology, Ghent University, Belgium. Dr. Vervoort came to her career as a research psychologist interested in pediatric psychology with a background in psychiatric (child/adolescent) nursing and clinical psychology. Having completed her PhD in clinical psychology on social determinants of child pain expression she has systematically conceptualized the dynamic interaction between children in pain and caregivers in terms that facilitate empirical study of family socialization and social context as determinants of child pain experience.

Drawing upon an affective-motivational account of pain, she has developed a theoretically integrative and clinically informative program of research addressing

- 1) (social) determinants of child pain expression and experience
- 2) the role and interrelationship of child pain-related attention and memory biases
- 3) the role of observer emotion regulation in understanding observers' emotional and behavioural responses and, most recently
- 4) the nature and role of parental and child injustice appraisals in the context of child pain.

Her work has been presented at numerous international congresses and published within internationally peer-reviewed papers. She is likewise the recipient of a number of prestigious national and international awards/grants. She is also the proud mother of 4 boys.</article>

15:00 - 15:45

Plenary session, San Francisco

Plenary IX - Distinguished Career Award

Prof. Dr. Ruth Grunau
University of British Columbia, Vancouver, Canada

Dr. Ruth Grunau has a PhD in Psychology and is a Professor in the Neonatology Division, Dept. of Pediatrics, University of British Columbia, and Senior Scientist in the BC Children's Hospital Research Institute. She is a pioneer in the field of infant and childhood pain. Her early research produced the first tool to quantify infant pain, still widely used today. She went on to use physiological, hormonal, behavioral and more recently, brain-based approaches to show the long-lasting adverse effects of pain and stress in premature babies. Her work has had a major influence upon the management of pain in infancy.

Scientific Programme

16:15 - 17:45

Parallel workshop, Sydney

Regular Workshop Session VII - Workshop 31: Primary Care - Prevention of pain chronification starts here!

Summary of presentation: Functional pain in children and adolescents is a common and increasing health care problem. Primary care is usually the first point of contact for these patients. If this treatment is successful, pain chronification can be prevented. However, we know that many primary care physicians lack confidence when confronted with a child with recurrent pain of unknown origin, which may arise from uncertainties regarding the diagnostic approach and the appropriate treatment.

To date, limited information is available on pediatric primary care treatment for functional pain and its impact for the patient. Therefore, this workshop aims to provide detailed information on the patient group, the treatment provided and the effectiveness of treatment. Additionally, new ideas on how to incorporate psychological approaches into primary care are presented.

References:

□•Lioffi C, Failo A, Schoth DE, Williams G, Howard RF. The effectiveness of online pain resources for health professionals: a systematic review with subset meta-analysis of educational intervention studies. *Pain*. 2018 Apr;159(4):631-643. doi: 10.1097/j.pain.0000000000001146.

□•Schmidt P, Wager J, Frosch M, Zernikow B. [Pediatric general practitioners and tertiary care structures for pain therapy. A qualitative study on the need for networking]. *Schmerz*. 2014;28(4):398-404. doi: 10.1007/s00482-014-1457-8.

□•Spee LA, Lisman-van Leeuwen Y, Benninga MA, Bierma-Zeinstra SM, Kollen BJ, Berger MY. Predictors of chronic abdominal pain affecting the well-being of children in primary care. *Ann Fam Med*. 2015;13(2):158-63. doi: 10.1370/afm.1736

Moderator: Dr. J. Wager (Children's and Adolescents' Hospital, Datteln Witten/Herdecke University, Datteln, DE)

16:15 - 16:35

Patient and parents expectations in primary care - What are physicians supposed to do?

Dr. J. Wager (Children's and Adolescents' Hospital, Datteln Witten/Herdecke University, Datteln, DE)

16:35 - 16:55

The course of abdominal pain in primary care - Can we predict outcome?

Dr. G.A. Holtman (University of Groningen, University Medical Center Groningen, Groningen, NL)

16:55 - 17:15

New treatment approaches in primary care - Can we improve outcome?

Prof. C. Lioffi (University of Southampton, Southampton, UK)

Scientific Programme

16:15 - 17:45

Parallel workshop, Singapore

Regular Workshop Session VII - Workshop 32: Sex and gender effects on pediatric pain: evidence from healthy and chronic pain patients

Summary of presentation: Sex differences have a profound influence on pain. Abundant evidence demonstrates that females have higher prevalence of chronic pain and higher pain sensitivity to experimental pain. Interestingly, this divergence in pain sensitivity between the sexes emerges during adolescence. Substantial development occurs across early life and childhood in many of the biopsychosocial areas related to the pain experience, with adolescence in particular representing a critical period of change. Some of the changes hypothesized to be particularly relevant to the development of sex differences in pain include emerging sex hormones, cognitive changes in executive functioning and emotion regulation, identity development, and shifting social influences. Gender role is a psychosocial mechanism that likely influences sex differences in how pain is experienced, expressed, and interpreted by others, however, the interplay between gender and sex and their effect on pain are unclear. Most evidence on sex and gender differences in pain stem from studies in adults. Better understanding of these effects in youth, and how they emerge over the course of development, will lead to better understanding of pediatric pain and improve pediatric pain management. Related to actual sex differences, it is critical to understand how adult (e.g., parents, health care providers) observers of children's pain – who are likely making diagnostic and treatment decisions – perceive differences in pain across gender. Specifically, there are data to suggest that adults hold implicit and explicit gender biases that impact their ratings of acute pediatric pain. The present workshop aims to take a developmental perspective to understanding the effects of sex and gender on the pediatric pain experience, considering the effects of early life through adolescence, and the role of adults (e.g., parents, health professionals) in shaping and assessing this experience.

References: Boerner KE, Birnie KA, Caes K, Schinkel M & Chambers CT (2014). Sex differences in experimental pain among healthy children: A systematic review and meta-analysis. *PAIN*. 155:983-93.
 Hunter BM, Nahman-Averbuch H, Leon E, King CD, Biro F, Coghill RC. (2018) Effect of puberty on pain in adolescents. SURF research day, University of Cincinnati.
 Cohen LL, Cobb J, Martin SR. (2014). Gender biases in adult ratings of pediatric pain. *Children's Health Care*, 43, 87-95.

Moderator: Dr. H. Nahman-Averbuch (Cincinnati Children's Hospital Medical Center, Cincinnati, US)

16:15 - 16:35

The role of puberty on sex differences in pain

Dr. H. Nahman-Averbuch (Cincinnati Children's Hospital Medical Center, Cincinnati, US)

16:35 - 16:55

A developmental perspective on sex differences in pain

Prof. C. Chambers (IWK and Dalhousie University, Halifax, CA)

16:55 - 17:15

Gender Biases in Adult Pediatric Pain Ratings

Prof. L. Cohen (Georgia State University, Atlanta, US)

Scientific Programme

16:15 - 17:45

Parallel workshop, Rio

Regular Workshop Session VII - Workshop 33: Virtual Reality and Pain Management: The reality of VR for managing procedural pain in children suffering from acute or chronic pain

Summary of presentation: Hospitalized and outpatient pediatric procedures such as burn wound care, venipunctures, chemotherapy treatments are considered painful and generate significant anxiety in children. Children tend to apprehend the pain and show signs of distress (cries, agitation, fear, anxiety) even before the procedure is even initiated. Procedural pain is still largely managed pharmacologically mostly through the use of opioids, benzodiazepines and other pharmacological agents which cause a lot of side effects and do not always provide sufficient pain reduction. Neither simple analgesia nor topical anesthetics proved effective for pain reduction in this population for these procedures. Moreover, opioids and procedural sedation do not appear to be feasible alternatives as they require surveillance, prolonging the time of the procedure added to their several undesired side effects. Therefore, it would be imperative to explore non-pharmacological pain management methods as they require minimal preparation and are usually not accompanied by side effects. Recently, the effectiveness of multimodal approaches combining medication with non-pharmacological interventions for procedural pain relief has been highlighted. Distraction techniques engaging multiple senses may grab the child's attention more than the techniques that only engage one sense (e.g. music), hence, the increasing interest in more immersive and interactive methods of distraction such as Virtual Reality (VR). VR is an active distraction method that allows the user to interact with an immersive environment generated by a computer stimulating different senses. Not only has VR shown promise for pain reduction in different settings but its positive effect has also been reported on anxiety and general distress during painful medical procedures.

Our workshop aims to present studies showing how VR can be used as a distraction method for procedural pain management of children from various clinical environments and suffering from acute or chronic pain.

References: Gold JI, Mahrer NE. Is Virtual Reality Ready for Prime Time in the Medical

Space: A Randomized Control Trial of Pediatric Virtual Reality for Acute Procedural Pain Management. *J Pediatr Psychol*. 2018 Apr 1;43(3):266-275. doi: 10.1093/jpepsy/jsx129. PubMed PMID: 29053848.

Khadra C*, Ballard A*, Dery J, Paquin D, Fortin J-S, Perreault I, Labbe D, Hoffman HG, Bouchard S, Le May S (2018). Projector-based virtual reality dome environment for procedural pain and anxiety in young children with burn injuries: A pilot study. *J Pain Research*, 2018(11), 343-353. <https://doi.org/10.2147/JPR.S151084>.

Moderator: Dr. S. Le May (University of Montreal, Montreal, CA)

16:15 - 16:35

Distraction using Virtual Reality for procedural pain management in children undergoing orthopedic and burn care

Dr. S. Le May (University of Montreal, Montreal, CA)

16:35 - 16:55

The reality of Virtual Reality for managing acute and chronic pain

Dr. J.I. Gold (University of Southern California, Los Angeles, US)

16:55 - 17:15

Virtual Reality distraction for Adolescents with Cancer undergoing painful procedures

Dr. J.N. Stinson (The Hospital for Sick Children, Toronto, CA)

Scientific Programme

16:15 - 17:45

Parallel workshop, Osaka

Regular Workshop Session VII - Workshop 34: Environmental, Behavioural, and Neurobiological Mechanisms of Maternal Contact and Touch on Immediate and Long-Term Pain Reactivity and Regulation

Summary of presentation: Despite the increasing attention to repeated pain exposure in early-life and long-term cognitive, behavioral, and social consequences, our understanding of the mechanisms by which maternal led interventions mitigate infant pain response and potentially promote greater regulation remain underexplored. This symposium brings together researchers at the basic and clinical levels to highlight translational science on the impact of maternal-led interventions on immediate and later pain reactivity and regulation.

This symposium will provide an overview of research in humans as well as in animals suggesting the role of peripheral and central nervous system mechanisms by which maternal-led interventions impact on pain-related outcomes. We will provide insights related to the underlying neurobiological mechanisms of nurturing touch and explore ways to improve behavioral and neurologic outcomes after early life adversity. Findings from novel animal models of nurturing maternal contact as well as human studies examining the impact of maternal contact during pain in early life will highlight immediate and long term behavioral and neurologic outcomes across full term and preterm born populations. This symposium will be of interest to multidisciplinary researchers and clinicians aiming to optimize newborn outcomes following early life pain by supporting nurturing maternal care.

References: Benoit B, Martin-Misener R, Newman A, Latimer M, Campbell-Yeo M. Neurophysiological assessment of acute pain in infants: a scoping review of research methods (2017). *Acta Paediatr*;106(7):1053-1066. doi:10.1111/apa.13839.

Johnston, C., Campbell-Yeo, M., Disher, T., Benoit, B., Fernandes, A., Inglis, D., Streiner, D., & Zee, R. (2017). Skin-to-skin care for procedural pain in neonates (Review). *Cochrane Database Syst Reviews*. 16(2): CD008435. DOI: 10.1002/14651858.CD008435.pub3

Mooney-Leber, SM., & Brummelte, S. Neonatal pain and reduced maternal care: Early-life stressors interacting to impact brain and behavioral development (2017). *Neuroscience*, Feb 7;342:21-36.

Moderator: Dr. M. Campbell-Yeo (Dalhousie University, Halifax, Nova Scotia, CA)

16:15 - 16:35

Impact of maternal care provided in early life on later pain response, neurodevelopment and regulation

Dr. M. Campbell-Yeo (Dalhousie University, Halifax, Nova Scotia, CA)

16:35 - 16:55

The Neurobiology of Nurturing Touch

Prof. F. McGlone (John Moores University, Liverpool, UK)

16:55 - 17:15

Translational animal models for the study of neonatal pain and maternal care

Dr. S. Brumelte (Wayne State University, Detroit, US)

17:15 - 17:35

The influence of breastfeeding on cortical activity during procedures in full term neonates: Findings of the iCAP randomized controlled trial

B. Benoit (Dalhousie University, Halifax, CA)

Scientific Programme

16:15 - 17:45

Parallel workshop, Samarkand

Regular Workshop Session VII - Workshop 35: It takes two to tango: Evaluating the role of parents in psychological interventions for pediatric chronic pain

Summary of presentation: Parents play a crucial role when it comes to their child's pain¹. There is increasing support that parent distress, responses to their child's pain (e.g., protectiveness, solicitousness), and modeling of pain behaviors may negatively impact children's pain coping and pain-related functioning in the context of pediatric chronic pain. On the other hand, parent psychological flexibility, acceptance of their child's pain and modeling of active coping strategies may have positive effects on children's coping and functioning. Thus, parental factors represent important targets for psychological interventions for pediatric chronic pain. Studies that have included parents as active targets are emerging and showing positive effects. For instance, changes in parent psychological flexibility following an acceptance and commitment therapy (ACT)-based program were associated with changes in child's acceptance². Further, parental factors may moderate children's responsiveness to pain interventions. Indeed, recent evidence suggests that higher levels of parent distress may increase a child's risk of poor responsiveness to psychological pain treatment³. However, how parent responses to interventions affect their child's functioning and how parent factors may moderate youth treatment responsiveness is not yet fully understood. In this workshop, we will present parent data collected in four different psychological interventions for youth with chronic pain, performed in the United States, the Netherlands and Sweden. We will discuss different approaches to targeting parents in the context of pediatric chronic pain treatment, parent-related changes over the course of treatment, as well as how such changes are associated with treatment responses in their children. The interventions highlighted represent the breadth of evidence-based psychological interventions for pediatric chronic pain, including two exposure-based treatments, ACT, and Internet-delivered cognitive behavioral therapy (CBT). Together, we aim to increase our understanding on parental influences on pediatric chronic pain, which may further inform and optimize parent-targeted treatment strategies to ultimately improve child's pain-related outcomes.

References: ¹ Palermo, T. M., & Chambers, C. T. (2005). Parent and family factors in pediatric chronic pain and disability: an integrative approach. *Pain*, 119(1-3), 1-4.

² Kemani, M. K., Kanstrup, M., Jordan, A., Caes, L., & Gauntlett-Gilbert, J. (2018). Evaluation of an Intensive Interdisciplinary Pain Treatment Based on Acceptance and Commitment Therapy for Adolescents With Chronic Pain and Their Parents: A Nonrandomized Clinical Trial. *Journal of pediatric psychology*.

³ Law, E., Fisher, E., Howard, W., Levy, R., Ritterband, L., & Palermo, T. (2017). Longitudinal change in parent and child functioning after internet-delivered cognitive-behavioral therapy for chronic pain. *Pain*. 158(10), 1992-2000.

Moderator: Dr. I. Timmers (Stanford University, Palo Alto, US)

16:15 - 16:35

Parental influences on child's chronic pain in the context of GET Living: an exposure-based treatment

Dr. I. Timmers (Stanford University, Palo Alto, US)

16:35 - 16:55

2B Active: treating pain-related fear in adolescents and parents with chronic pain

Prof. J. Verbunt (Maastricht University, Maastricht, NL)

Scientific Programme

16:55 - 17:15

Parent pain reactivity and psychological flexibility as predictors of treatment outcome in Acceptance and Commitment Therapy for children and adolescents with chronic pain

Dr. V. Zetterqvist (Karolinska University Hospital, Stockholm, SE)

17:15 - 17:35

Longitudinal changes in parent factors in response to internet-delivered CBT for pediatric functional abdominal pain

Dr. A. Stone (Vanderbilt University, Nashville, US)

Scientific Programme

Thursday, 20 June 2019

08:15 - 08:30	Other session, Sydney Art and Pain
08:15 - 08:30	Presentation 2 Dr. E. Reifert (CH)
08:30 - 09:15	Plenary session, Sydney Plenary X
08:30 - 09:15	Neuropathic pain Prof. Dr. A. LeBel (US)
09:15 - 10:00	Plenary session, Sydney Plenary XI
09:15 - 10:00	Communicating with families about pain Prof. Dr. N. Schechter (US)
10:30 - 12:00	Plenary session, Sydney Plenary XII
10:30 - 12:00	Debate: Walking the tightrope of effects: Pros and cons of morphine for neonatal pain Prof. Dr. R. Grunau (CA) Prof. Dr. D. Tibboel (NL)
12:00 - 12:30	Other session, Sydney Wrap up, Summary, ISPP 2021